William Scar

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MANUAL OF HARMONIC TECHNIC

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MANUAL OF HARMONIC TECHNIC

BASED ON THE PRACTICE OF J. S. BACH

By

DONALD TWEEDY

Published for the
Eastman School of Music of the University of Rochester

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FOREWORD

THE Eastman School of Music is proud to sponsor Donald Tweedy's *Manual of Harmonic Technic* as the first of what we hope may become a series of distinguished works on musical theory and pedagogy.

Nothing is more important in the development of the music student, whether he be instrumentalist, vocalist, or composer, than sound musicianship based on superior training in the essentials of musical theory. The material which comprises Mr. Tweedy's book has stood the test of a thorough experimental period in the classes of the Eastman School of Music. Its effectiveness as a text book for the serious music student has been proven beyond doubt. We feel confident that it will constitute a notable addition to the list of text books on musical theory.

Howard Hanson

Director, Eastman School of Music

August 30, 1928

PREFACE

HARMONY deals with the combination of tones into structures known as chords and the arrangement of these structures in successions which shall be logical and significant to the musical mind. The study of harmony in relation to the art of music has often, and with reason, been compared to the study of grammar in relation to literature. In this sense it is a craft. He who would compose music needs to master the technic of this craft till the connection of one chord with another becomes as smooth as the proverbial *legato* of the adept at *bel canto*, 'flowing like wine and oil.' It makes very little difference whether this study, in which the angle of perception is predominantly vertical, precedes or follows the study of counterpoint, in which it is horizontal, so long as neither is pursued for too extensive a period at the expense of the other. For the general student of music, the pianist, the violinist, the singer, I am by no means convinced that as thorough an apprenticeship in the technicalities of harmonic part-writing is necessary as for the prospective composer. Such students ought rather to concentrate on sight-reading and on singing and playing *ensemble*. They should, however, have an analytical knowledge of harmony sufficient to enable them to understand such matters as the interrelationship of chords in a given key, the various types of cadence, and the process of passing from one key to another termed modulation. They should be able to examine any musical composition whatsoever and to describe what happens in it from the harmonic standpoint.

It is possible to become adept at this analysis without ever writing a note, especially if it can be supplemented by work at the keyboard and by harmonic dictation. Satisfactory work at the keyboard can be done only by those who have reasonable dexterity in handling it, but this dexterity should be expected even of singers and of students of orchestral instruments if they hope to become well-equipped musicians. Similarly, harmonic dictation cannot go far unless the student is possessed of a reasonably good ear, but a quality of aural perception sufficient to determine with fair accuracy the several chords belonging to a single key should be expected of one whose profession is to be music.

In order to provide for the needs of the student who desires a general understanding of harmony, and, in addition, to supply the prospective composer with a background of harmonic experience, Part I of this manual is designed to cover the entire field of study with especial emphasis on the analytical point of view. It is my conviction that, in any event, the detailed study of part-writing should be preceded by an ample acquaintance with the fundamental principles of harmonic procedure ascertained through the examination and analysis of examples of expert craftsmanship. I have therefore given to Part I the title 'Preliminaries.' The remainder of the manual is concerned with the practical building up of the technic necessary for the writing of harmony, but it is so arranged that that technic may be studied either by means of the keyboard or through dictation, as well as through direct analysis.

Throughout the body of the work, the discussion of harmonic theory as such is avoided. I hope there is no dogma in these pages. I have chosen rather to address numerous questions to the student, designed to elicit from him his own harmonic

theory. No rules are written in the text, but he may, if he likes, deduce his own rules of procedure from the material presented, and certainly he should debate all points which he finds questionable, both with his instructors and with his fellows. He is at liberty to refer to any treatise on harmony, and is urged to examine all musical compositions which he may be studying or playing over or hearing at concerts, with a view to the deduction of general principles from those concrete instances with which he is familiar. It is assumed that he has sufficient maturity of mind and is sufficiently interested in the subject to do his own thinking and to conduct his own research when personal investigation of a technical problem is advisable.

The indispensable requirement for research applied to harmony is the ability to analyze the chord-structure of a musical composition with reference to tonality or key. There can be found passages, sometimes brief, sometimes extensive, when tonality is held in abeyance, when there is, properly speaking, no key. Roughly till the year 1900 composers were reluctant to leave the tonality in doubt for more than a very few harmonic successions. Since that date there has been a rapid increase in the use of what may be called 'coloristic harmony,' when chords are used for their value as color and their order is based on an impressionistic sense of their contrast or similarity in sound rather than on their relationship to a given tone-centre. Then, while they may be said to have shape, they cannot be analyzed for function. It is necessary in the study of harmony to master first the functional relationships of chords when they are in a given key and when they change over from one key to another in modulation. Every means presented in Part I for facilitating the technic of harmonic analysis should be assimilated as rapidly as possible, and the practice of that analysis should

be taken up without waiting for the student to begin to write harmony.

As soon, however, as he begins to write, the true vitality of his workmanship lies in the conduct of the lines of his composition, of his melodic voices. Therefore it has seemed advisable to limit the scope of technical procedure in the present work to the writing of chord-successions for four voice-parts. The instructor may choose to add to this style of writing others which are rhythmically more plastic and more suitable to a keyboard instrument, such as the types characterized by broken or by repeated chords, but the four-voice style, being unquestionably fundamental for chorus, string-quartet, and orchestra, is adhered to throughout this volume.

Musical models for this style of writing were necessary which should be expert in craftsmanship as well as sufficiently rich in harmonic vocabulary to serve to illustrate all phases of the subject. It was also imperative that they be beautiful. The masterly chorale-settings for four voices by J. S. Bach fulfill these requirements as no other work of musical art can. They form, by themselves, within the limits of a single volume, a complete 'school' of harmonic part-writing as yet unsurpassed. As published by the firm of Breitkopf & Härtel,—'Joh. Seb. Bach: *371 Vierstimmige Choralgesänge*, Edition Breitkopf No. 10,' they are an indispensable companion to the present manual, and are constantly referred to in the text. (See Appendix.)

Though I realize that inharmonic or unessential tones are the life of Bach's harmony and that their early use develops in the student a sense of line and a feeling for the movement of part against part which are necessary to him as a musician, I have preferred to put off their introduction till after the consideration of dominant and second-dominant seventh-chords in

Part III, not only because they properly come under the head of Dissonance, but because I am of the opinion that the student should be able to think out a harmonic plan and to put chordal material together expertly before he adds ornament. The foundation of a good harmonic technic may be acquired through the handling of three-tone chords alone, hence the restriction of the material of Part II to triads only. It is certain that if the student is willing to labor over this phase of the subject till he masters it, he will find he can build with confidence on the substructure thus laid down. The section on inharmonic tones is, however, so designed that their study may be introduced earlier at the discretion of the instructor.

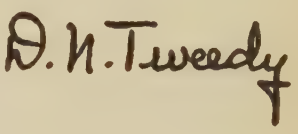
The technical terms employed in this work are in accordance with current usage. The system of symbolization, while in some respects novel, has been developed from that originated by Gottfried Weber and improved upon by Faisst and Goetschius. It is especially designed to serve as musical shorthand in the taking of dictation, and has proved its entire practicability during five years of trial at the Eastman School.

In arriving at the manner of presenting the subject of harmony which is here recorded, I have found especial stimulus in the theoretical teaching of Rimsky-Korsakoff and Vincent d'Indy in Europe and of Ernest Bloch, Percy Goetschius and Franklin Robinson in America. To the last named must be accorded particularly deep appreciation for the inspiration of his personal training which, though frequently spiced by the zest of emphatic disagreement with his ideas, was always evocative of fruitful discussion.

My hearty thanks are due also to my colleague, Melville Smith, to Professor Berrian Shute of Hamilton College, and to

my former pupils Ralph Robbins, George Van Schaack, and Herbert Inch for assistance in preparing this manual for the press.

EASTMAN SCHOOL OF MUSIC,
Rochester, N. Y.
March 4, 1928.

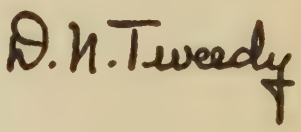


FROM AUTHOR TO TEACHER

With this MANUAL OF HARMONIC TECHNIC I invite the coöperation of all teachers who share my conviction that young musicians can better achieve good habits of harmonic craftsmanship through the systematic and thoughtful consideration of the usage of composers rather than by following rules of procedure. I feel that the teacher should cease to be a preceptor, imposing his ideas, or mine or any author's, upon his pupils from *without*, but rather that he should strive to develop *within* them powers of observation and reflection that will enable them to reason out for themselves the difference between good and bad technic, and to apply in actual practice the knowledge and, more important still, the *taste* thus acquired. All this takes time and patience and application, but, as Owen Wister once said, there are no short cuts except to perdition.

The publisher has advertised this manual as "a harmony book without rules." Now rules are simply verbal expressions of good habits, and it is better that those habits should be formed in and through actual work than through recourse to a formula. If the many examples and illustrations I have given and cited in these pages are technically sound,—and I have done my best to make them so without being finicky,—then the rules are *implicit* in them. I have simply refrained from making them *explicit*. If it helps a student to make a rule for himself, by all means let him do so, but that is a quite different thing from hedging him about with professorial prescriptions.

It is for the teacher to select the material to be presented to his students by virtue of his greater familiarity with what can be useful to them, to help them to criticize their own practice by virtue of his riper experience, and, above all, to spread among them the contagion of enthusiasm for good craftsmanship by virtue of his own compelling enthusiasm. If the function of the teacher can thus change from perceptor and ruler of the classroom to being a sort of elder brother-in-work, education will become richer and more human, and even technical training will become more fascinating because less mechanical.



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PART I

PRELIMINARIES

TONALITY AND SCALES

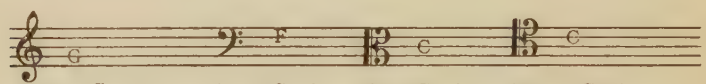
TONALITY implies the presence of a tonal centre, a single note, toward which other tones are felt to converge. In melody, which is an arrangement of single tones in succession, this centre is sensed as that point in the arrangement at which the ear finds rest. This we call the *Tonic*, or *Key-note*.

In musical practice, this Tonic stands in a certain relationship to the notes used with it, a relationship which has acoustical justification. Any sonorous vibrating body which sounds as a unit (as 1) will produce a composite tone of which the most prominent element is called its *fundamental tone*, or, simply, its *fundamental*. If free to vibrate for only one-half its length, or if vibrating in halves, the tone produced will be peculiarly like the fundamental, with this difference, that the pitch is raised to a higher level. This is the phenomenon of the *octave*. Between a tone and its octave there is room for other tones, and it is the number and arrangement of these which has exercised the ingenuity of composers since the beginning of the art of music.

We are here concerned only with the practical result of a long process of development. All systems of arrangement which have had artistic vitality agree on one point: they include a tone corresponding to that of a vibrating body two-thirds the

length of that producing the original fundamental. This we call the *Dominant* of the key.

The most usual series of tones including Tonic and Dominant are expressed on the *Staff* used for musical notation. This consists of five horizontal lines and the spaces between them. The staff is arranged to express seven tones, and seven only, which are named after the first seven letters of the alphabet. The duplications of these tones at the octave above and below, at the double-octave, etc., are given the names of the original seven. The location of any tone is conventionally fixed by a Clef or 'Key,' in the ancient sense of that which unlocks the secret of a code. We habitually use three of these clefs: 𝄞 which locates a G on the second line counting from the bottom; 𝄢 which locates an F on the fourth; and 𝄡 which locates a C on the third or the fourth line.

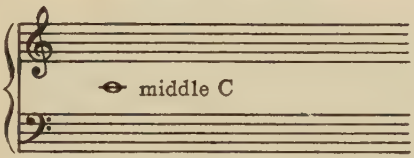


Treble Clef Bass Clef Alto Clef Tenor Clef

The G fixed by the Treble Clef has 384 vibrations per second; the F fixed by the Bass Clef has 170.6 vibrations, while the C indicated by the Alto and Tenor Clefs has 256. (Philosophical Standard)

It will be seen that though in modern times they are but rarely used except in orchestral score, there are two positions for the C-clef. This is because the arrangement of the other tones has been for centuries most *usual* with respect to C. The staff is conventionally interpreted or 'read' with reference to a standard arrangement of tones having C for its tonal centre or Tonic. The C of the Alto and Tenor clefs is exactly between the other two clefs, and is called middle-C. The Treble and Bass clefs are

often bracketed together and form thus the most convenient combination for the indication of all pitches:



This combination is known as the Great Staff.

It is presumed that the student has mastered the use of the Great Staff, cited for the sake of completeness in the exposition of the tone-relationships which it expresses.

The series of seven tones, rearranged with C as tonic, reads, proceeding upward:—C, D, E, F, G, A, and B. To complete the octave, we add the C above B. These tones or pitches (and their octaves) *are the only ones expressed by the staff-notation unmodified by sharps or flats.* When C is considered the tonic, the arrangement is that known as the *Major Scale.* Conventionally, the differences in pitch may be shown thus:

C to D = 1 tone. Approximate ratio of vibration, 8:9
C to E = 2 tones. Approximate ratio of vibration, 4:5
C to F = 2½ tones. Approximate ratio of vibration, 3:4
C to G = 3½ tones. Approximate ratio of vibration, 2:3
C to A = 4½ tones. Approximate ratio of vibration, 3:5
C to B = 5½ tones. Approximate ratio of vibration, 8:15
C to C = 6 tones. Actual ratio of vibration, 1:2

The tone corresponding to a vibrating body two-thirds the length of C is the G above it. G therefore is the Dominant of the Key of *C.*

Starting from C and proceeding upward four tones, the intervals are tone, tone, half-tone. Likewise, starting from the Dominant G and proceeding upward to octave C, the intervals

are again tone, tone, half-tone. The difference between a tone and a half-tone is expressed approximately by the difference between the ratios 8:9 or 9:10 for the whole-tone and 15:16 for the half-tone,—'approximately' because the mathematical accuracy of all pitch relationships except the octave is modified in the current system of tuning called 'Equal Temperament,' which is designed to permit the inclusion within the octave of twelve equal half-tones. The student is advised to glean more detailed information about acoustics, pitch, and tuning from scientific works and from musical encyclopedias, but a few intelligent questions addressed to a piano-tuner will usually elicit enough facts to enable him to form an adequate opinion on how far musical custom departs from mathematical accuracy.

We find, in the examination of various folk-scales, a widespread use of a five-tone scale corresponding to C-D-E-G-A-[C] in the major scale of seven tones. This scale is called *pentatonic* —(Greek: meaning five-tone)—and the interesting points about it are that it contains a Tonic and a Dominant with the pitches one whole-tone above both, *plus* another pitch two whole-tones above the Tonic. There are no half-tones, but there are two skips or intervals of a tone-and-a-half. This seems to show that certain primitive peoples were conscious of the relationship of Tonic and Dominant, of the whole-tone, and of the 'major third,' as we call C to E in the *C*-major scale.

The science of acoustics bears out this primitive instinct for a major third, as the interval C to E corresponds to the next simplest mathematical ratio (4:5) after those producing the octave and the fifth. The addition to this pentatonic scale of the pitches corresponding to F and B in the *C*-major scale may be regarded as the practical result of experiment in filling in the gaps. It seemed satisfactory to many peoples that their Tonic

should be approached from below by a half-step, and that their Dominant should not be, lest there result a confusion as to which was the real centre.

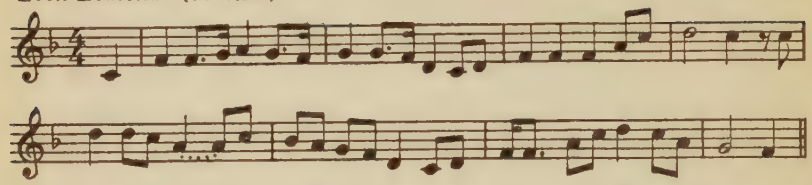
But there is another form of pentatonic scale found especially among Celtic peoples in which a different arrangement is met with. This runs A-B-D-E-G-[A], or, expressed with C as Tonic, C-D-F-G-B♭-C. There is no third in this scale, and the note below both Tonic and Dominant is a whole-step away. When a third is added, it is apt to be a half-tone above D (a minor third from the Tonic) ; when a sixth is added, it is indifferently a half- or a whole-tone above G.

These two pentatonic scales show a very ancient difference of feeling between Dominants. The true Dominant of the second form seems to be F rather than G, the Dominant *below* (*Sub*-dominant). This note is to C as 3:2, another simple mathematical relationship.

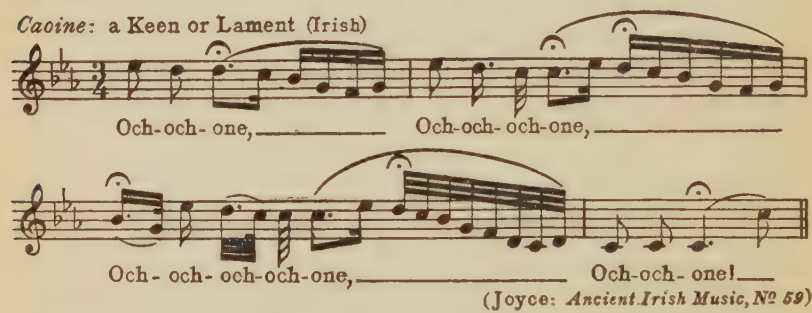
Even strictly melodic folkmusic oscillates between these two Dominants in the course of a single song, but in the main the distinction seems to be that, for a bright mood, the Western singer chooses the upper Dominant with major third, and 'natural' half-step below the Tonic, and his melodic inflexions are *upward*, as the voice naturally rises in laughter; for a dark mood, he chooses the lower Dominant, with minor third, and 'flat' whole-step below the Tonic, and his melodic inflexions are *downward*, as the voice naturally falls in weeping.

The following folktunes are almost pure pentatonic; they show unmistakably the exact constitution of the five-tone scale from which their own scale was derived, as well as the contrast in directional tendency which is a further distinction between major and minor.—

Loch Lomond (Scottish)

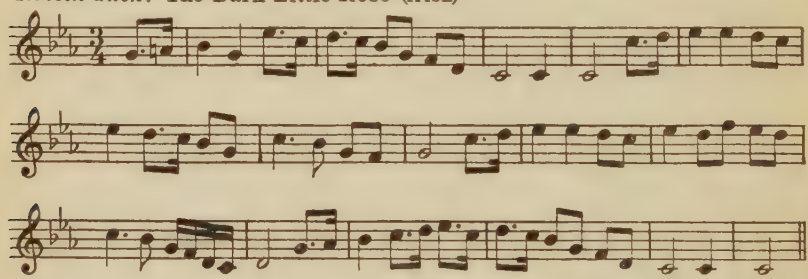


Caoine: a Keen or Lament (Irish)



(Joyce: *Ancient Irish Music, № 59*)

Roisin dubh. The Dark Little Rose (Irish)



(Redfern Mason: *Song Lore of Ireland*)

The well-known tune '*Loch Lomond*' has a scale developed from the major pentatonic by the addition of the perfect fourth above the tonic. The refrain is almost identical, and is omitted here. The rather wistful 'brightness' of the tune becomes shadowed by a downward melodic curve at just the point where the refrain declares 'But I and my true love will never meet again.' Pure major pentatonic tunes are not far to seek in Scottish folksong.

The '*Caoine*,' or Irish keen over the dead, is a perfect example of a scale developed from the descending pentatonic minor expressive of the deepest woe. The 'small' third is added as initial note of the first Ochones. The scale-6th is omitted, but it is present both as A-natural and as A-flat in the beautiful '*Roisin dubh*.'

Combining the complete series of seven tones in the two forms of scale, we get a series from tonic C of C-D-E♭-E-F-G-A♭-A-B♭-B-C. The invariable tones are C, G, F, and D, or Tonic, fifth above, fifth below, and the tone above the Tonic, which, except in the artificially calculated Greek and Gregorian modes, is so frequently among Western peoples a whole-step above, that the exceptions do not preclude a generalization. From the standpoint of pure melody this tone is properly considered 'Supertonic.' From the standpoint of harmony it is often considered as the Dominant of the Dominant, bearing as it does the same relationship to the Dominant that the Dominant bears to the Tonic. It is then spoken of as 'Second Dominant.'

The invariable constituents of a scale may be said to be, then, the Tonic and its three dominants, Dominant proper, Subdominant, and Second Dominant.

The variable constituents are the third tone above (the Mediant), the third below (Submediant), and the tone directly below the Tonic.

This last tone bears customarily the designation 'Leading-tone,' because, being but a half-step below in the major-scale relationship, it tends actively toward the keynote. The designation is faulty, however, since we have observed that when a minor third-step is used this tone is frequently lowered a half-step and its melodic tendency is then quite as strongly downward as upward. It is then properly called 'Subtonic.'

MAJOR AND MINOR MODES

The two pentatonic scales quoted serve to illustrate an antique difference of feeling with regard to the arrangement of tones within the octave to express brightness and darkness of mood. The course of developed musical art has persistently

clung to this elemental and primitive distinction, with this important modification, that with the advent of a sense of harmony about the sixteenth century, the difference may be said to centre about the Mediant or third tone of the scale. If this tone is a major or large third (two whole-tones) from the Tonic, the mode is bright,—Major. If it is a minor or small third (a tone-and-a-half) from the Tonic, the mode is dark,—Minor. Moreover, the more primitive feeling for the lower Dominant in the dark mode gave place to a demand, hinging on the need for a 'natural' Leading-tone in the *cadence* or concluding chord-formula, that the upper Dominant be retained as foundation for the next-to-last chord, in which the 'natural' Leading-tone might then be satisfactorily incorporated. Hence we now have three conventional forms of the minor mode:

1) 'Harmonic' with flat sixth-step and natural seventh.
2) 'Ascending Melodic' with natural sixth and seventh.
3) 'Descending Melodic' with flat sixth and seventh.

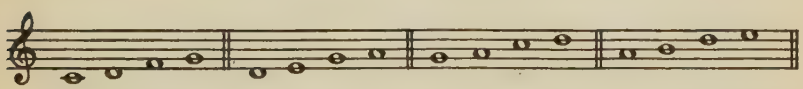
(The comparison is with the major mode in each case. All three forms have, of course, the minor third-step.)

It is the Descending Melodic form which is the truest to the primitive type and which has the best claim to be called Pure Minor, especially if the lower Dominant be taken as the tone next in importance to the Tonic. But composers for the past three centuries, in response to an innate sense of chord-succession, have insisted that when harmony is applied to the minor mode, the same method of procedure shall be followed as with the major. The arrangement of tones which best fits this method is that with flat sixth-step and natural seventh, and that is the reason that form of the mode is called 'Harmonic.' When the other forms are used, the reasons are apt to be melodic. The 'Ascending Melodic' form is identical between its fifth and

eighth steps with the Major mode, which has developed out of a primitive pentatonic scale thought *upward*. The 'Descending Melodic' form is that of a developed and completed scale thought *downward*. The difficulty which many theorists have to justify the minor mode arises from an apparent conflict in the procedure of composers between 1) the harmonic sense and the melodic; 2) the upward tendency of a 'natural' seventh-step and its downward tendency when 'flat'; and 3) the two intonations of the sixth-step, which is 'flat' in most *chords* and 'flat' when the melody descends, but 'natural' when it moves upward. The result has been a considerable restriction in the freedom of chord-construction when the minor mode is employed, and this is a pity, because, once the variable nature of the sixth and seventh steps is properly understood, the scope of harmonic procedure becomes broader, not narrower.

TONALITY, THE MODES, AND THE STAFF

It should be plain from the foregoing discussion that the sense of tonality has for some hundreds of years been satisfied with an arrangement of tones within the octave which shall include the Tonic and its three Dominants, tones which may be represented by the numerical symbols 1, 5, 4, and 2. Any series of degrees on the staff which satisfies the exact relationship of these tones may theoretically be the basis of a scale suitable for the application of chordal harmony. Such series are found beginning on C, on D, on G, and on A.



Now a major or bright mode is one having a third step two whole tones above the Tonic. In this scheme, modes on C

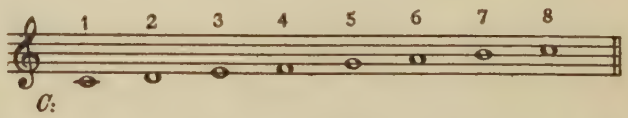
and on G would be major. A minor or dark mode is one having a third step a tone and a half above the Tonic. Modes on D and A would fulfil this condition. The difference between the C and G modes would be in the seventh step, which would lie a half-tone below C, but a whole-tone below G. The difference between the A and D modes would be in the sixth step, which would be 'flat' in the A mode and 'natural' in the D. In both, the seventh step would be 'flat.'

But a secondary condition of a bright mode has long been that the seventh step shall lie but half a tone beneath the tonic. The C mode, but not the G, meets this condition. And while usage with respect to the sixth tone of a dark mode has in melodic procedure been varied, it has, in harmonic procedure, been customarily 'flat,' while the seventh step has been 'natural.' The A mode comes nearer than the D to meeting this condition.

Therefore, as expressed by the notes on the staff, unmodified by accidentals, *the* C *mode may be regarded as typical of all major modes* (modes with major third and true 'leading-tone'), *while the* A *mode is typical of all minor modes* (modes with minor third and variable sixth and seventh).

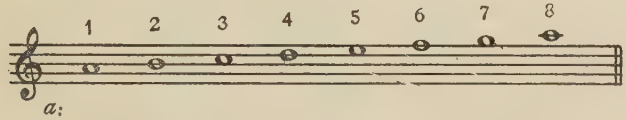
MELODIC SYMBOLS

We shall, in the present work, symbolize the tones of the major scale in accordance with the unmodified staff degrees between C and its octave, using an Italic capital letter to designate the quality of the mode and the numbers 1 to 8 to designate the degrees of the octave, thus:

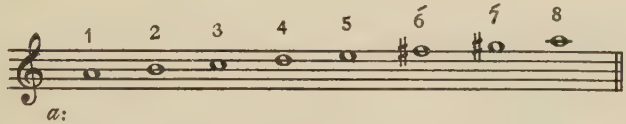


For the minor mode, we shall use similarly a small Italic

letter for the key, and the numbers 1 to 8 will symbolize the relationships between A and the tones of its octave:



But since, in the minor mode, 6 and 7 are variables, we shall employ the simple device of marking them with an *acute accent* when they are raised in pitch. This will show their variation from the type as given above.



[The typical minor mode as given is, of course, the mode known as the 'Aeolian,' and is by all odds the commonest folk-minor. *Either* 6 or 7 or both together may be 'raised' as indicated in the second illustration for the scale of *a*. The 'Harmonic' minor, with 7́, is the most frequent composer-minor. 6́ without 7́ makes the so-called 'Dorian' mode, fairly common in folksong, and becoming more so among composers. In case of doubt, or in case a melody employs *both* 6's or 7's, a grave accent may be used for the step of lower pitch, but the differentiation between 6 and 6́, 7 and 7́, is ordinarily sufficient.]

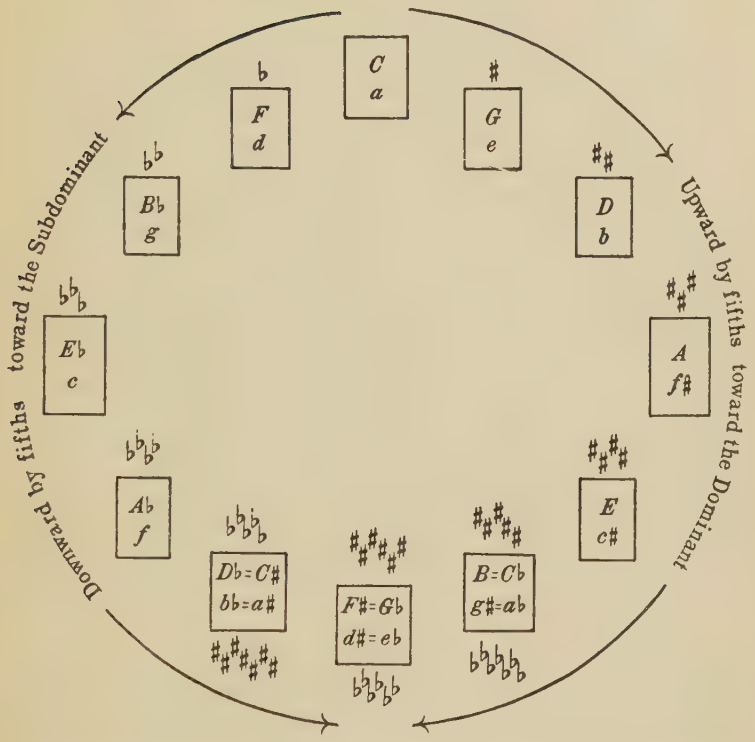
Other Keys than *C* and *a*. (*C*-major and *a*-minor): The study of the duplication of tone-relationships termed 'major mode' and 'minor mode' is most conveniently undertaken at the keyboard of the piano. These relationships may be duplicated from any given pitch as Tonic. It is inferred that the student who is adequately prepared for the study of harmony can play at the keyboard or write out rapidly in notation the pitches of either the major or minor mode from any given Tonic. *The form of the minor mode recommended is that of the series between* A *and its octave on the unmodified staff.* After mas-

tering this form, he should concentrate on the two variable tones, 6 and 7, and be able to play or write the scale in any one of its three common forms. Considering the numerical symbols for each mode as representing the actual pitches involved, he should then acquire speed and accuracy in naming the note in any key or mode on being given its symbol, e. g.—Name the 5 in *g;* the 3 in *A;* the 7 in $e^{\flat}$; the 6 in *d;* the $\acute{6}$ ('six-acute') in *f;* the 7 in $B^{\flat}$; the $\acute{7}$ in $b^{\flat}$, etc. He should then be required to sing the note after hearing the Tonic played or sung, but this problem may be postponed till after the technic of *Intervals* has been mastered.

The thorough study of scales involves, of course, the knowledge and application of *accidentals* in the staff-notation. It is presumed that the student has mastered the elements of this notation, and that he knows that C is equal in pitch to $B^{\sharp}$, $C^{\sharp}$ to $D^{\flat}$, and so on.

Key-Signatures and the Cycle of Fifths: The tonalities *C* and *a* have the same key-signature: no sharps or flats. *G* and *e* require an $F^{\sharp}$, therefore that accidental appears as their key-signature. *F* and *d* require similarly a $B^{\flat}$ in their signature.

In like manner, the signatures of the remaining keys are formed by the addition of sharps, proceeding *upward* by fifths from *C* or *a* as a starting-point, or of flats, proceeding downward by fifths. Theoretically this procedure could be continued to infinity. Practically it stops when all seven tones have been modified by an accidental. The representation of this process graphically by a cycle or circle in which each keynote stands in the relationship of the interval of a fifth to those on either side of it is most useful.——



Keys having the same signature are called Relative Major and Minor.

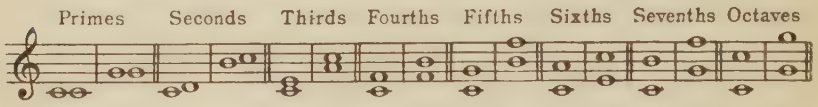
Keys next each other in the cycle have the relationship of 'Dominant' or 'Subdominant,' according to direction.

Each added sharp modifies the seventh step of the new major key 'toward the Dominant.' Each added flat modifies the fourth step of the new major key 'toward the Subdominant.' The minor keys 'borrow' the signatures of their relative major keys.

INTERVALS

Interval is the designation given to two tones considered in relation to each other. Intervals are best studied with the staff degrees in mind.

A *Prime* (or Unison) is the relationship between two tones on the same staff degree.
A *Second* is the relationship between two tones on consecutive staff degrees.
A *Third* is the relationship between two tones on alternate staff degrees.
A *Fourth* is the relationship between two tones separated by 2 staff degrees.
A *Fifth* is the relationship between two tones separated by 3 staff degrees.
A *Sixth* is the relationship between two tones separated by 4 staff degrees.
A *Seventh* is the relationship between two tones separated by 5 staff degrees.
An *Octave* is the relationship between two tones separated by 6 staff degrees.



All intervals of the same name *look* alike on the staff, but on account of the half-tone interval between the E and F, and B and C degrees, all do not sound alike, even when no sharps or flats are used. It is necessary, in judging any given interval, to estimate first what *kind* of a Prime, Second, Third, etc., it would be on the staff *unmodified*, and then apply the principle that:

Raising the pitch of the upper member or lowering that of the lower makes an interval larger; conversely, lowering the pitch of the upper member or raising that of the lower makes an interval smaller; the name, of course, remains unchanged.

It is of great practical advantage to learn by heart all the intervals represented by the unmodified staff degrees. These are all in *C* major, (or in the Descending Melodic Minor on A), and may be expressed by the use of the seven letter-names of the staff degrees. For convenience, intervals are customarily reckoned *up*, from the first-named degree to the second.

On the Unmodified Staff:

all Primes or Unisons are *Perfect*, = 0 half-tones (pitch identical).
C-D, D-E, F-G, G-A, A-B are *Major* Seconds, = 2 half-tones.
E-F, B-C are *Minor* Seconds, = 1 half-tone.
C-E, F-A, G-B are *Major* Thirds, = 4 half-tones.
D-F, E-G, A-C, B-D are *Minor* Thirds, = 3 half-tones.
all Fourths are *Perfect*, equalling 5 half-tones, except F to B, which equals 6 half-tones, and is called an *Augmented Fourth*.

all Fifths are *Perfect,* equalling 7 half-tones, except B to F, which equals 6 half-tones, and is called a *Diminished Fifth.* (It will be noted that the Augmented Fourth and Diminished Fifth are equivalent in sound.)

C-A, D-B, F-D, G-E are *Major* Sixths, = 9 half-tones.
E-C, A-F, B-G are *Minor* Sixths, = 8 half-tones.
C-B, F-E are *Major* Sevenths, = 11 half-tones.
D-C, E-D, G-F, A-G, B-A are *Minor* Sevenths, = 10 half-tones.

all Octaves are *Perfect,* = 12 half-tones.

For the ear, it is most practical to reduce all species of intervals to the types represented by the relationships between the Tonic of the major scale and each of the other tones. These then become a standard by which to reckon all intervals:

1-2 = Major Second; 1-3 = Major Third; 1-4 = Perfect Fourth; 1-5 = Perfect Fifth; 1-6 = Major Sixth; 1-7 = Major Seventh; 1-8 = Perfect Octave. It will be seen that these intervals are all Perfect or Major. The reason for the difference in terms is found in the comparative simplicity of mathematical ratio involved in unison (1:1), octave (1:2), fifth (2:3) and fourth (3:4). The other ratios not previously given (see p. 3) are minor third, 5:6; and minor sixth, 5:8. The relations move throughout a theoretical cycle represented thus:

Read L. to R.

Perfect

+½ tone = +½ tone = +½ tone = +½ tone = +½ tone =

Doubly Diminished —Diminished— Minor — Major —Augmented— Doubly Augmented

Substitute *minus* for *plus* and read R. to L.

The term Perfect includes both Major and Minor.

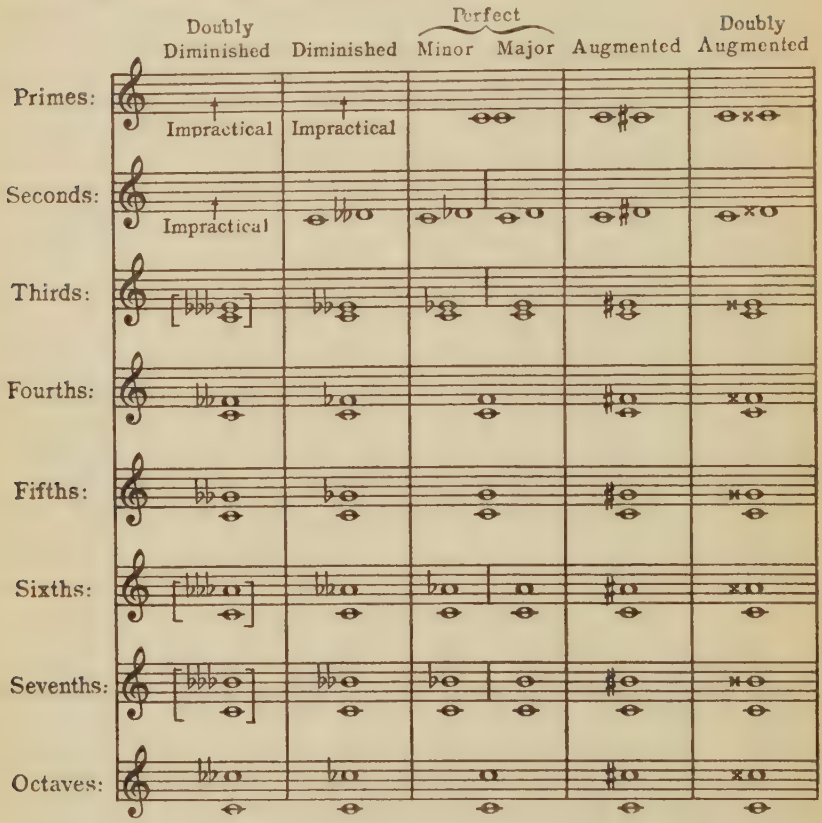
Perfect Intervals become immediately Augmented or Diminished when enlarged or decreased by half a tone.

Major Intervals decrease to Minor and then to Diminished.

Minor Intervals increase to Major and then to Augmented.

Doubly Diminished and Doubly Augmented Intervals are theoretically possible, but rare in practice. They are sometimes met with when melodic voice-parts move chromatically (by half-steps) away from or toward each other. They are never met with as parts of a single chord belonging to a definite tonality.

Table of Intervals from C:



The Diminished Prime and the Doubly Diminished Prime and Second are relationships of tone *lower* in pitch than the Tonic, and are practically unthinkable. Notations never met with in practice are enclosed in parentheses. The *C* Major form, in every case, is the interval without sharps or flats. Intervals larger than an octave are reduced, for convenience, to their equivalents within the octave. A Ninth is equivalent to a Second, a Tenth to a Third, etc., though from a harmonic standpoint we often have to think Ninths, Elevenths, and Thirteenths.

Certain Primes in the above table *sound to the ear* like certain Seconds, certain Seconds like certain Thirds, etc. For example, the Augmented Prime c-c♯ sounds, in our modern system of Equal Temperament, precisely like the

Minor Second c-d♭. This is because we have to express the tone between c and d in two different ways, depending upon whether it is regarded as a raised c or lowered d. *Two tones of the same pitch thus expressed as two different staff degrees are said to be enharmonically equivalent. Two intervals which sound exactly alike but are expressed in two different ways are also said to be enharmonically equivalent.* c♯ is enharmonically equivalent to d♭; the interval c-c♯ is enharmonically equivalent to the interval c-d♭, but one is a Prime and the other a Second.

CONSONANCE AND DISSONANCE

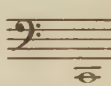
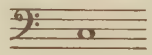
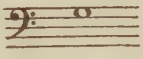
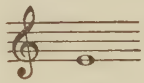
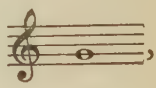
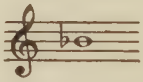
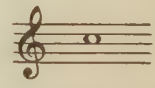
All perfect primes, fourths, fifths and octaves are considered to be *consonant* intervals; likewise all major and minor thirds and sixths; all other intervals are said to be *dissonant*.

The psychological basis for the distinction between consonance and dissonance is the relative satisfaction or dissatisfaction of the human ear with the sound of a given combination of two pitches when produced simultaneously. The consonant intervals seem stable: they do not demand further tonal movement. The dissonant intervals seem unstable: they insist on being followed by some other combination of tones till consonance is again reached. This is termed their 'resolution.' A dissonance is active while a consonance is passive.

Examine the Table of Intervals from c. What are the limits of the ratio of vibration between two tones of a consonant interval?—How do you explain the fact that an augmented second is considered dissonant while its exact equivalent in *sound*, the minor third, is considered consonant?—If but two simultaneous sounds were involved, would you regard a perfect fourth as a satisfactory consonance?

THE STRUCTURE OF TRIADS

The arrangement of tones in chords is referable to the order in which the overtones of a single tone are obtained by regular

mathematical subdivision of the length of the vibrating body. Thus, if the c below the Bass Clef be taken as the unit, and the fourth string of the Violoncello be taken as a convenient means of demonstration, it will be found that, while when ordinarily plucked or bowed the string as a whole sounds  , it needs only to be lightly touched at a point one-half its length to sound the octave:  . In like manner, if lightly touched (*not* 'stopped') at a point one-third of the length from either end, it sounds  . At one-fourth, the sound is , at one-fifth:  , at one-sixth:  , at one-seventh:  , and at one-eighth:  .

The acoustical reason for the differences in pitch of these sounds is the inherent tendency of any sonorous body to subdivide and vibrate in regular fractions of itself as well as to vibrate as a unit. The proof that the tendency is inherent lies in the fact that the string need not be touched with mathematical accuracy: to be touched *near* the required point is sufficient. Since the string is not stopped, all of it is still in motion, but the successive elevations in pitch are explicable by the fact that the fractional lengths into which the string tends to subdivide are shorter than the length of the whole in diminishing arithmetical ratio, $\frac{1}{2}$, $\frac{1}{3}$, $\frac{1}{4}$, $\frac{1}{5}$, etc.

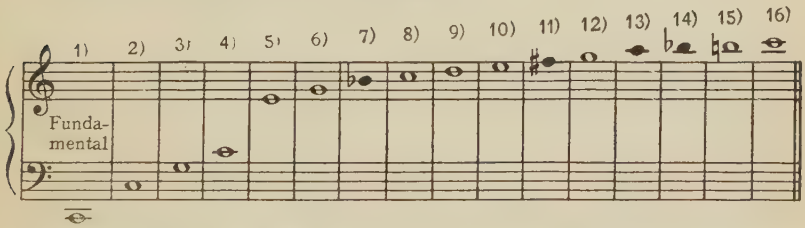
[For fuller information on this phenomenon, which is variously termed the phenomenon of Overtones, Harmonics, or Upper Partials, consult any authori-

tative musical encyclopedia, or any complete text-book on Physics, under *Sound*. Consult also orchestral players of strings as to how they produce their 'harmonics,' and of brass- and wood-wind instruments as to how they regularly produce their upper tones.]

Overtones are regularly contained in the 'fundamental,' (the pitch produced when the vibrating body sounds as a unit), and contribute to its richness of timbre. It is the order in which these overtones are obtained which interests us as a guide to the best acoustical arrangement of three or more sounds in chords.

The series of overtones up to no. 16 is shown below. The numbers indicate the number of portions, technically termed *segments*, in which the vibrating body is subdivided. Thus 1) indicates the pitch of the fundamental, when the body is sounding as a whole, 2) its pitch when vibrating in halves, 3) when vibrating in thirds, etc.

Table of Overtones or Harmonics



Numbers 7), 11), 13), and 14) are definitely out of tune to ears accustomed to Equal Temperament, but their substitutes in the tempered scale are acceptable when used in combination. This series should be memorized and reconstructed from all pitches. It is interesting to note the mathematical relationships involved. Thus 1), 2), 4), 8), and 16) are all c's; 3), 6), and 12) are g's. 5) and 10) are e's. Twice *anything* is the same note, an octave higher in pitch. The ratio 2:3 always gives a perfect fifth. [Cf. 2) and 3), 6) and 9), 10) and 15), etc.] Compare with the list of approximate ratios of vibration for intervals in the major mode, p. 3. The series could theoretically be continued to infinity.

After thorough study of the preceding table, ask yourself the following questions:

What three-tone chord would be nearest to an acoustical ideal, i.e., what combination of *three different* pitches would be in accordance with the natural phenomenon of overtones?—What combination of *four?—Of five?*

A TRIAD IS A THREE-TONE CHORD CONSISTING OF A NOTE WITH ITS THIRD AND FIFTH.—If three voices are written for, what are the best arrangements for a triad?—If four voices are written for, one of these tones must be 'doubled,' i.e., duplicated at the unison or octave or double-octave. Which is the best tone to double in a triad built on c as bass?—Which is the next-best?—Which is the least good?—If the four voices are called Soprano, Alto, Tenor, and Bass in order from highest to lowest, what are the best intervals between Bass and Tenor?—How many four-voice arrangements of a triad on c are actually to be found in the table?—(E.g., 1), 2), 3), and 5) could be Bass, Tenor, Alto, and Soprano, respectively, in which the Tenor doubles the Bass.)

Musicians in general use four varieties of triad:

Major Triad with major third and perfect fifth (intervals reckoned from the Bass).

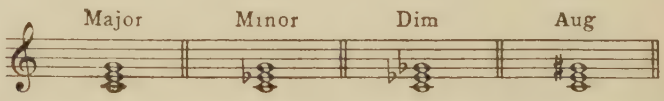
Minor Triad with minor third and perfect fifth.

Diminished Triad with minor third and diminished fifth.

Augmented Triad with major third and augmented fifth.

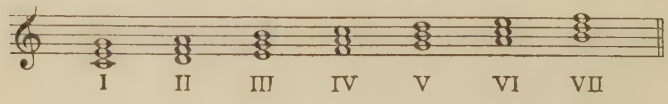
Considering all the overtones of the fundamental c as if they were in tune from the standpoint of the tempered scale, which three form the major triad?—the diminished triad?—the minor triad?—the augmented triad?—Are any of these duplicated?—

Comparing the sounds of the four combinations of three tones known as Major, Minor, Diminished, and Augmented Triads, which are more satisfactory i.e., which could close a piece of music with a sense of finality and which could not?—



The practice of musicians is to erect a triad on each degree of the scale in both modes. *We symbolize these by a Roman numeral corresponding to the scale-note used as Bass.—*

Major Mode:



Which of these triads are *Major*? Which *Minor*? Which *Diminished*? Are any *Augmented*?

Any arrangement of the C-E-G combination in *C*-major is commonly referred to as the 'Tonic triad' and symbolized by I, so that the Tonic triad is 'the One,' for short. In like manner the Dominant triad is known as 'the Five' (V), the Subdominant is 'the Four' (IV), the Second Dominant 'the Two' (II), the Submediant 'the Six' (VI), the Mediant 'the Three' (III), and the Subtonic triad 'the Seven' (VII).

Can you discover any reason, either from a purely theoretical standpoint or from what you observe to be the practice of composers, why the chords of the Major mode should be listed in the order of succession just given?

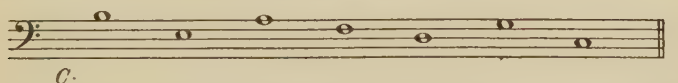
Observe that it is the Bass-note from which the chord is named, i.e., the lowest in pitch, to which the other notes stand in intervallic relation of third and fifth, and that all triads are constructed by placing one third over the Bass and then adding another.

If all the triads of the Key are used in succession, the order is apt to be:

VII→III→VI→IV→II→V→I.

Remember that these Roman numerals stand for the notes on which the chords are built, and that these notes will occur in the lowest voice (the Bass) unless a triad is 'inverted'—a procedure to be considered farther on. Such notes are termed 'roots' or 'fundamentals.'

Thus the roots of the indicated succession are:



C.

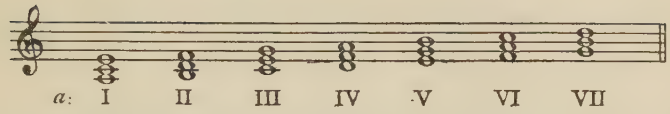
C is the key, and the pitch C is the tone-centre.—G is the next-to-last note, which means that, as commonly used by composers, a chord built on G would be felt to be nearest to the tone-centre. What is the mathematical ratio of the pitch G to the pitch C, whether in length of resonant medium or in number of

vibrations per second?—Can you apply this ratio to the entire succession of pitches?—Where will it fail?—If one pitch is omitted will the ratio apply throughout?—What is the ratio of the pitch of the omitted note to c?—Can you find the omitted note in the Table of Overtones from c?—Could you find c among the overtones reckoned from the pitch of the omitted note?—Is that note important in the melodic scale?—If the ratio of c to that note were again applied, what note would be reached?—Is this note in the scale of *C*?—To what general conclusion do you come concerning the *harmonic* relationship of the pitches forming the scale of *C*?—Write out a *harmonic scale* which shall express that relationship.

Minor Mode: In the main, the practice of composers with respect to the minor mode parallels the essential features of their treatment of the major. Thus, in the key of *a*, the importance of the members of the scale considered as roots is in the order A, E, D, B, F, C, G, just as it would be in *A*-major, but the more remote chords are somewhat less frequently used, for the reason that successions of the chords on G and C; C and F; or G, C, and F; containing major thirds as they all do, and forming major triads, are foreign to the character of the mode. The succession of the triads on G and C inevitably suggests *C*-major unless carefully handled. (The composer is of course free to employ this modulation if he so desires.)

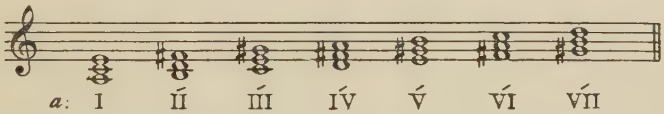
Purely melodic considerations play a far more important role in the minor mode than in the major. In this connection, review that portion of the preliminary discussion of the modes which deals with the minor.

For the reason that the scale found on the unmodified staff between A and its octave best represents the ancient, traditional contrasting form of the minor mode, we shall here consider it the typical form. Erecting triads on each degree of the scale, we get:



Which of these triads are *Minor*?—Which *Diminished*?—Which *Major*?—Are any *Augmented*?—Compare the chords symbolized by the same numerals in major and in minor.

The practice of composers with respect to the minor mode is such that 6 *and* 7 *of the scale may be considered variables.* Thus F and G in the key of *a*-minor may be changed to F♯ and G♯ without affecting the tonality. *This gives an alternative form for every triad in the mode except the* I. In symbolizing these forms, we use an acute accent *above* the Roman numeral:



The accented symbols are pronounced 'Two-acute,' 'Three-acute,' etc. Note that wherever the accent occurs, the chord has to be spelled with an accidental.

Which of these triads are *Minor*?—Which *Diminished*?—Which *Major*?—Which *Augmented*?—

Exercise: Teach yourself to spell rapidly (in the order: root, third, fifth) and to play at the keyboard, every triad in major and in minor, including the variables, in all keys.

HARMONIC ANALYSIS

In order that the student may proceed directly to the analysis of harmony in musical compositions, he should familiarize himself

at once with the more common chord-forms. Briefly summarized they are these:

Triads 'in fundamental position,' *root in Bass*, always reducible in any key to the series built on the scale-notes with third and fifth added. Symbols, I, II, III, etc.

First Inversions of Triads, *when the third of the chord is in the Bass*, the symbols being I_1—II_1—III_1, etc., pronounced 'One-one,' 'Two-one.'

Second Inversions of Triads, *when the fifth of the chord is in the Bass.* Symbols, I_2—II_2—etc., pronounced 'the One-two,' 'the Two-two,' etc.

These three 'positions' of the triad are always reducible to the following arrangements on the staff:

Triad [Figured Bass Symbol: 3 / 5, 3, or nothing at all]	First Inversion of Triad= 'Chord of the Sixth' in the system of Figured Bass. [Symbol: 6]	Second Inversion of Triad= 'Chord of the Six-Four' in Figured Bass. [Symbol: $\frac{6}{4}$]

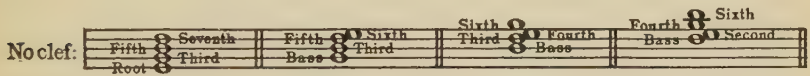
Seventh-Chords 'in fundamental position,' root in Bass, reducible in any key to the series built on the scale-notes with third, fifth, *and seventh* added, the symbols being V^7—II^7—IV^7, etc., pronounced 'Five-seven,' 'Two-seven,' etc.

First Inversions of Seventh-Chords, *when the third of the chord is in the Bass.* Symbol, like V_1^7 ('Five-seven-one').

Second Inversions of Seventh-Chords, *when the chord-fifth is at the bottom.* Symbol, like V_2^7 ('Five-seven-two').

Third Inversions of Seventh-Chords, *when the chord-seventh is at the bottom.* Symbol, like V_3^7 ('Five-seven-three').

These four 'positions' of the Seventh-Chord are always reducible to the following arrangements on the staff:



Seventh-Chord [Fig. Bass Symbol: 7]	First Inversion, 'Chord of the Six-Five' in Fig. Bass. [Symbol: $\frac{6}{5}$]	Second Inversion, 'Chord of the Six-Four-Three' in Fig. Bass. [Symbol: $\frac{6}{4}$ or $\frac{4}{3}$]	Third Inversion, 'Chord of the Second' in Fig. Bass. [Symbol: $\frac{6}{4}$ or $\frac{4}{2}$ or 2]

In this manual, the Figured-Bass symbols are not used, as they are nowadays of real service only to the musicologist.

Ninth-Chords, most commonly met with as added ninth to V^7 in both modes, occasionally to II^7 in major and to IV^7 in minor. Symbol, like V^9 ('Five-nine'). Rarely inverted.

Chords of the Eleventh and Thirteenth, when they can be said to occur, may be symbolized in like manner.

INHARMONIC OR UNESSENTIAL TONES

Composers rarely limit themselves to the typical chord-forms in their greatest simplicity, but any examination of actual music will reveal that the chords are built up 'in thirds' unless there has been conscious and deliberate avoidance of the typical forms. Tones which, when reckoned from the root, will not fit into a

structure built 'in thirds' are generally inharmonic, and may be disregarded in functional analysis.

Inharmonic or unessential tones are always dissonant, and are introduced either deliberately *because* they are dissonant, in which case they are apt to be rhythmically accented, or as melodic ornament, in which case they are regarded as a means of varying the melodic line, and may be either accented or unaccented. Ornamental tones sometimes produce, casually, the effect of another chord than that in which they occur, but this apparent change of harmony is but a passing phenomenon, and need not be analyzed unless it seems of functional importance. Typical instances of inharmonic tones will be classified later on.

MODULATION

Every student of music is familiar with the changes of key-centre which are called *modulations*. When it is reflected upon that the I in *C* is equivalent to IV in *G* and also to V in *F*, i.e., that the combination C-E-G may be considered common to the keys of *C*, *G*, and *F* (it is also possible as a triad in how many other keys?),—it will be perceived that to *name* it as Tonic, Subdominant, or Dominant depends on recognizing its *function*. Is it the chord built upon the tone-centre C?—Or is the tone-centre a fifth above (= a fourth below) or a fourth above (= a fifth below)?—In the second case, the function of C-E-G will be Subdominant, and it will be designated as IV in *G;* in the third, the function of C-E-G will be Dominant, and V in *F* is the proper designation.

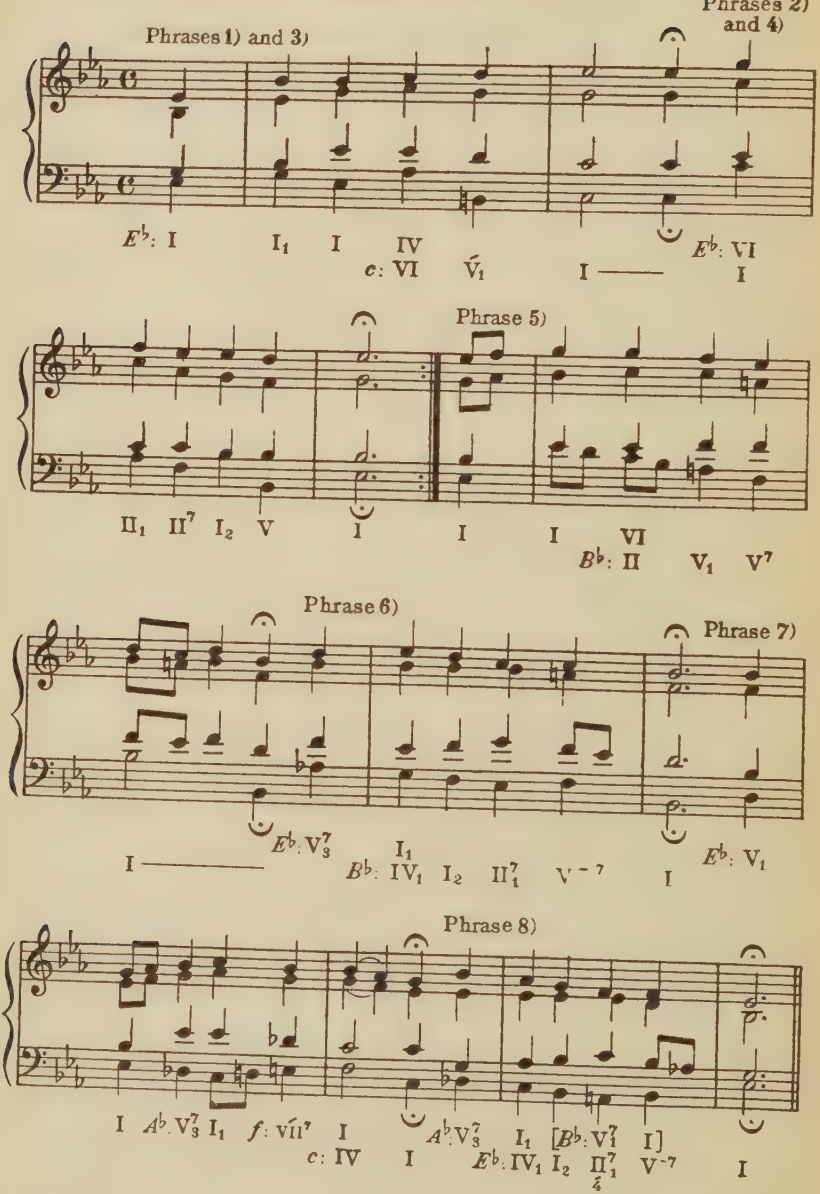
While the process of modulation is most easily understood in the kind of case just referred to, when the Tonic triad of the 'old' key, a chord which impresses the ear as being at the centre

of the key and conveys the idea of repose and equilibrium, becomes a chord on an active root in the 'new' key, demanding to move to another chord, the transition from one tonality to another is not always made with such simplicity. In general, however, the essential principle of modulation may be graphically represented to the mind by imagining adjacent estates, the property of two owners, separated by a fence with a large gate in it. The fence is common property, for even keys as far apart as *C* and *F*♯ have two *pitches* in common. (B is 7 in *C* and 4 in *F*♯; F is 4 in *C* and, as E♯, is 7 in *F*♯.) There is, in many instances, a complete chord which may be considered as standing on the boundary line; there may be actually more than one: these chords may be considered 'fence-chords,' as if the fence were painted red on one side and green on the other. When seen from X's estate, it looks red; when seen from Y's, it looks green, but it is the same fence in either case. Occasionally, a modulation 'jumps the fence,' i.e., the new key begins abruptly and without apparent reference to the old.

Transient Modulation: Quite frequently, the gate in the fence is swung open as if we were to proceed into the territory of the new key; then, with our first step on the other side of the fence, we change our minds, turn on our heel, and come right back. This is the type of modulation known as *transient*. Technically, it occurs *when the chord of resolution in the new key is simultaneously an active chord in the old*, pivoting us back immediately into the tonality from which we have just come.

Our scheme of analysis will be more clearly perceived if we examine the following chorale:

Valet Will Ich Dir Geben.—(108) J. S. BACH



Note the customary German title for the text of the chorale. This is often the title for the traditional tune also. The number in parentheses refers to the number of this chorale in the *Edition Breitkopf,* No. 10. (See Appendix.)

The division of the chorale into sections, the ends of which are marked by a *fermata* or 'hold,' should be remarked. These sections correspond to the lines or verses of each stanza of the original text. Almost invariably, each of these sections constitutes what we call a musical **phrase.** Study the chorale thoroughly; memorize it, so that you can play it without the notes. Can you, after this study, give a definition of a musical phrase?—*Counting the Repeat (which in these chorales should regularly be done),* there are eight phrases.—Could there be a different subdivision of the chorale?—Is there anything which contrasts with the phrase, or which includes it, which could be called a **sentence** or **period?**—What would be the difference in *finality* between a phrase ending with a comma and a phrase ending with a period, both in language and in music?—Do you find this difference illustrated in the chorale?—Can you give a definition of a *sentence* which shall differentiate it from a *phrase*?—In music we call a concluding formula a **cadence.** At least how many chords are required to give the sense of musical punctuation which occurs at each *fermata*?—Is there sufficient regularity in the *order* of these chords and in their construction to enable you to regard them as concluding formulas or cadences?—Does the concluding chord regularly occur on a strong beat or on a weak?—Is there any difference between the phrase in general and the sentence in this respect?—Musicians ordinarily classify cadences as Perfect and Imperfect. Can you now define the difference?—Have the cadences anything to do with Modulation?—

Let us next consider the chorale from the standpoint of **Modulation.**

In the first phrase there is a modulation from $E\flat$ to *c*; the 'fence-chord' which may be considered to be in both keys is A♭-C-E♭, which is IV in $E\flat$ but is VI in *c*. In subsequent analyses, it will usually be sufficient to symbolize this boundary-chord in but one of the two keys involved. The second phrase, considered alone, would be entirely in $E\flat$, but the first chord happens to be identical with the Tonic triad of the old key. The third and fourth phrases are repetitions of the first and second. The fifth phrase modulates to $B\flat$ through the chord C-E♭-G, which is VI in the old key and II in the new. At the beginning of the sixth phrase, there is a *transient modulation* to $E\flat$ through the chord B♭-D-F-A♭ in third inversion. The gate into $E\flat$ is opened, and Bach takes one step on the other side by following the chord whose root is B♭ by one whose root is E♭, though both are in inversion. But he now turns back, the second chord in $E\flat$— the I_1— being equivalent to the IV_1 in $B\flat$, in which key he continues and concludes the phrase. The symbolizing of the transient modulation is necessarily more complex than that of the modulation which continues in the new key, as the boundary-chord has to be represented in both keys. This may be done as in the text, or the phrase could be analyzed thus:

$E\flat$: V_3^7 | $I_1 = B\flat$: IV_1 I_2 II_1^7 V^{-7} | $\widehat{I}$

Note that the V_3^7 in $E\flat$, which begins the phrase, contains all the notes of the I in $B\flat$ which preceded it, and that the V_1 which begins the next phrase (in $E\flat$) is composed of B♭-D-F, the chord having just been Tonic in $B\flat$. That next phrase, the seventh, should be scrutinized very carefully. Is there any reason why the final chord should not be analyzed as the V in *f*?—The last phrase begins with a transient modulation to $A\flat$. The third chord from the end is chromatic, a II^7 in first inversion with A♭ raised to A♮. Note that this chromatic alteration is symbolized by 4́, which means that the fourth degree of the scale is raised a half-tone. Is there any rhythmic reason why this chord should not be symbolized as V_1^7 in $B\flat$?—

Consider next the problem of **inharmonic or unessential tones.** There are none till the fifth phrase. The first two chords in that phrase are both Tonic. The principal melody-tones in Soprano are E♭ and G. Between these is an F which is not harmonized, and which is paralleled melodically by the Alto, a sixth below. These are called 'passing tones.' Would there be any good reason for including these tones in an analysis of the *harmony*?—The Bass of the second and third chords shows the same melodic character. Note that the inharmonic tones occur off the beat.—Do you understand Bach's intention in using the inharmonic tone D♮ in the Bass of the seventh phrase?—

In the second measure of the fifth phrase, a somewhat different use is made of parallel melodic ornament in the three upper voices. Obviously this is a mere triple arabesque: the harmony remains Tonic. The inharmonic tones are here called 'auxiliaries' or 'neighboring notes.'—At the end of the first measure of the sixth phrase is an example of a melodic tone (the E♭) so important in the sound of the chord as to constitute what is termed a 'passing seventh.' This is represented by V^{-7}. It occurs also in the next-to-last chord of the chorale.

The only case of accented inharmonic tones occurs on the strong beat of the second measure of phrase 7. Notice that the Soprano and Alto tones are prolonged from the previous chord, though not tied, and that they fall to the proper chord-tones before the harmony changes. These tones are called 'suspensions.'

Till the detailed study of part-writing involving the use of inharmonic tones, it is neither necessary nor advisable to characterize these by any special names, such as passing or auxiliary tones, appogiaturas, suspensions, anticipations, etc. It is imperative, on the other hand, to become expert in discerning which tones belong to the chord-structure and which do not. Those which do not can simply be cancelled in analysis; those which do are to be represented in the system of symbols.

CHROMATICS

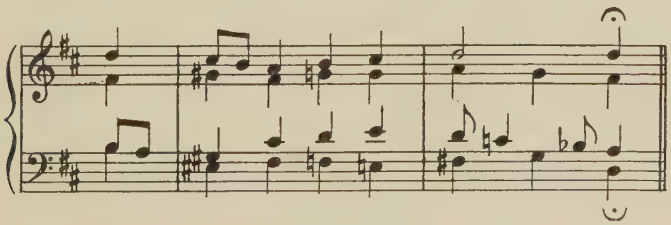
For the purposes of analysis, especially as applied to the chorales of Bach, it may be stated briefly that *Chromatics* are

alterations of certain tones of the diatonic scale in order to impart *variety of color* to the chords in which they are incorporated. (Greek, *chromatikos*: 'suited to color.')

Since there are but seven letter-names to designate musical notes, and since in any given tonality there is one conventional arrangement of these for the major mode which is invariable, and one for the minor which has two variables (6 and 7), it follows that any *chromatics* employed will have to be expressed, in notation in the key, by accidentals, and that chords containing accidental notes may be named and symbolized precisely as if the accidentals were not there, *provided the chord-succession reveals no modulation.*

Refer again to the chorale '*Valet will ich dir geben.*' Is the third chord from the end chromatic in $E\flat$ or diatonic in $B\flat$, i.e., does it indicate modulation or does it not? If it does, its function is Dominant; if it does not, its function is Second-Dominant. The author's preference has already been indicated. Play the last *phrase* in its entirety and decide whether you agree. If the next-to-last chord is considered Dominant, there is no choice. If it were considered Dominant (helped by the passing seventh) but also Tonic in $B\flat$ (before the seventh is heard), then there would be a transient modulation terminated by the triad on B♭. There are situations in which two analyses are possible, and either may be chosen. Is that the case here?

Examine the following phrase from the Passion-chorale, '*O Haupt voll Blut and Wunden*' (89):



The previous phrase ended in *b*. The first chord is therefore modulatory and the succession indicates the key of *f♯*, terminating with the I on the *second* beat of the first complete measure. (What do you say to the rhythm of this?) The rest of the phrase indicates the key of *D*. How shall we express the harmony of such chords as F♮-D-G♮-B, or of G-B♭-D (just before the final chord)? The former is G-B-D-F in third inversion, therefore IV_3^7 in *D*. The note of the scale of *D* which is chromatically changed is the third degree, F. We could symbolize this altered tone by a ♮ (3♮), but our symbol should apply to all accidentals which might lower a scale-tone. Therefore we use, instead, the *grave accent* as stenographically quicker and symbolically more precise, and the symbol becomes *D*: IV_3^7 with $\grave{3}$ written underneath ('Four-seven-three with lowered scale-third'). The C♮ is inharmonic in the chord on G next before the last. The chord tone is B♭, making a IV triad with a lowered scale-sixth. This we might express symbolically by IV with $\grave{6}$ written underneath. We shall learn later how to make our symbol less complex. For the present, *consider all chromatically altered chords simply as if they were diatonic, and express the alterations as raised or lowered scale-steps.*

COLOR CHORDS

Occasionally we meet passages in music which defy analysis for tonality or key. The chords involved have no discernible function in relation to a key-centre. Their shape and sound may, however, be described in shorthand by this simple method:

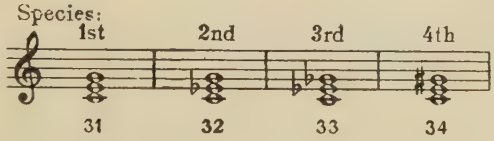
The *possible* triad sounds are four in number, and are called Major, Minor, Diminished, and Augmented. A triad is a three-tone chord, and its characteristic form is identified with its name, therefore an adequate symbol for it would be 3—. The Major triad might be considered the First Species, and symbolized by the figure 31. The Minor would be Second Species, symbolized by the figure 32. The Diminished triad would be 33, and the Augmented, 34. When in inversion, it would merely be necessary to use the usual inversion-figure as *denominator* under the species-symbol as numerator. A major triad in first inversion would be represented by $\frac{31}{1}$, etc.

The *possible* seventh-chord sounds are nine in number. They have never been provided with distinctive names such as

characterize the triads. Though they are four-tone chords, their characteristic form is identified with the interval of a seventh, therefore each species might have for symbol a 7 placed to the left of the numeral representing the species.

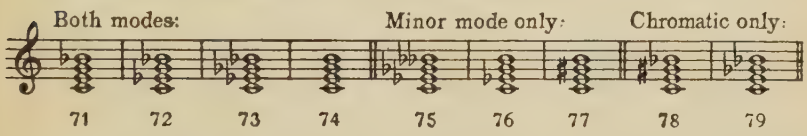
A table of the possible triad and seventh-chord sounds with a classification by *species* follows:

TRIADS.



or Triad-sounds *like* these, however spelled.

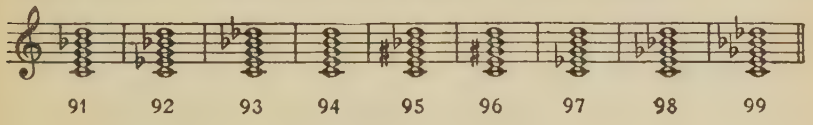
SEVENTH-CHORDS or sounds like these:



The first four species of seventh-chords are found, in diatonic harmony, in both modes; the next three only in the minor mode; the last two only as chromatically altered chords. The inversions of seventh-chord sounds would be represented in the same manner as inversions of triads, e.g. $\frac{76}{3}$ would be a 'Sixth-species seventh-chord in third inversion.'

71, 72, 73, and 74 may be identified as those seventh-chords built on G, A, B, and C using the unmodified staff. 75 is the 'Diminished Seventh Chord,' and may of course be so described. An inversion figure is not really necessary for this chord, nor for the Augmented triad, when they are used as color-harmonies. Why not?—76 is like $\acute{I}^7$ and 77 like $II\acute{I}^7$ in minor. 78 is like V^7 with raised scale-2nd in major, and 79 like the same chord with lowered scale-2nd.

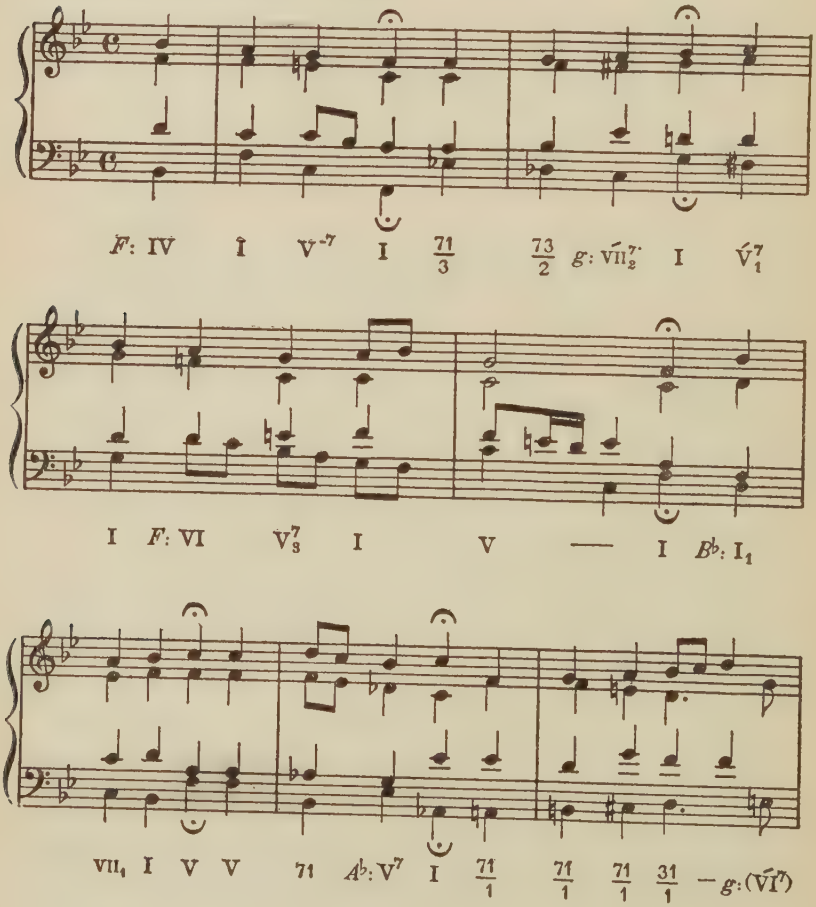
If a classification of common ninth-chord sounds were added, we should have a fairly complete method for the representation of color-chords:

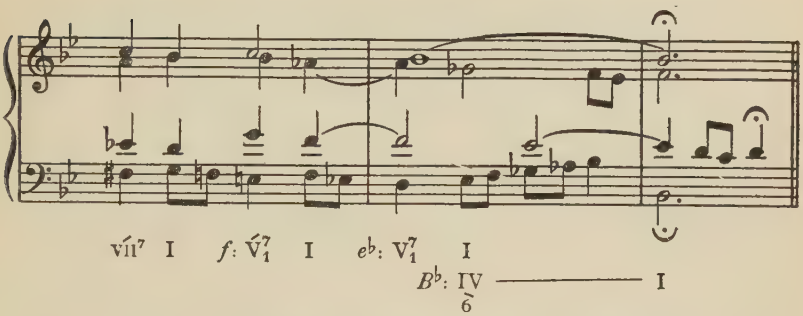


This classification is presented only tentatively. While the combinations indicated by 91, 92, 93, 95, and 96 are fairly common, the others are rare. 91 is like V^9 in major, 92 is like II^9, 93 like $\acute{V}^9$ in minor, etc.

The following chorale is one of the very few of Bach's settings in which color-chords may be found:

Ach Gott und Herr (279):

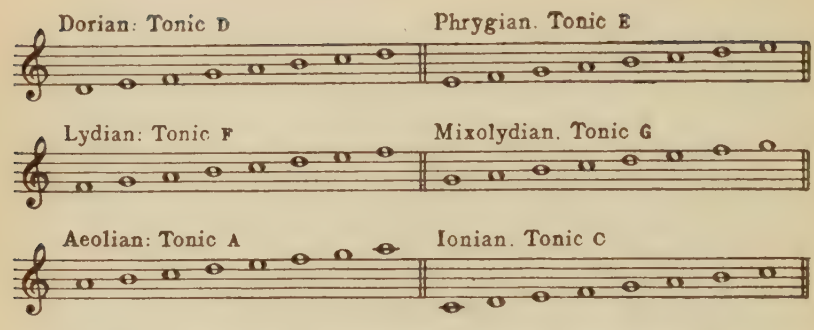




In this chorale, the modulatory chord is indicated as belonging to the *new* key, which is the course usually to be preferred except with transient modulations. The first phrase is all in *F*, despite the key-signature. The first two chords in the second phrase give no hint of the tonality; even when the last two are added, we cannot place the first two in *g*-minor. In the fifth phrase, Bach follows one seventh-chord of the first species with another, but only the second has *function* (V^7 in $A\flat$). The last phrase presents certain difficulties of analysis; the first species sevenths in first inversion are easy enough to perceive, though possibly the third and fourth chords of the phrase might be considered as VII^7_1 (chromatically altered) and I_1 in $B\flat$. There is a momentary VI^7 at the end of that measure, giving us the sense of *g*-minor. No sooner does the *g* cadence follow than we have, in rapid sequence, V^7_1—I in *f*, and V^7_1—I in $e\flat$. The I in *f* might be felt to be *also* the first chord in $e\flat$ (the II in a transient modulation), but the sequential arrangement by which Bach executes the complete maneuver from *g* to $B\flat$ (ordinarily a simple feat) is better revealed by the symbols as written.

THE INFLUENCE OF THE OLD CHURCH MODES

While J. S. Bach himself avoided writing harmony along the lines of the old Church modes, he was obliged, in setting certain of the more ancient of the traditional chorale-melodies, to adapt harmony in *two* modes (major and minor) to melody in *six* modes. These six arrangements of the tones of the scale with the Greek names by which they are commonly called today are cited here for reference, without entering into the history of how they came to be so named:



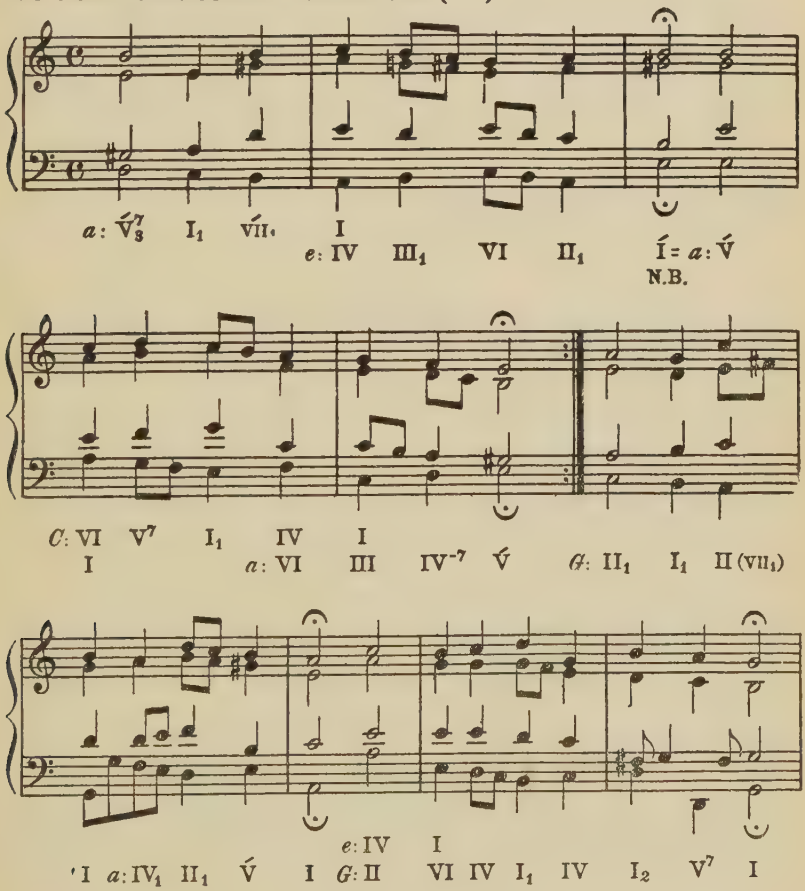
Obviously, these six modes would have been seven, but that both Church and People (the Folk) instinctively avoided the one mode in which the Dominant (the fifth tone) would be less than a perfect fifth above the Tonic, the mode on B. This mode exists, historically, and is called 'Locrian,' but examples of it are exceedingly rare.

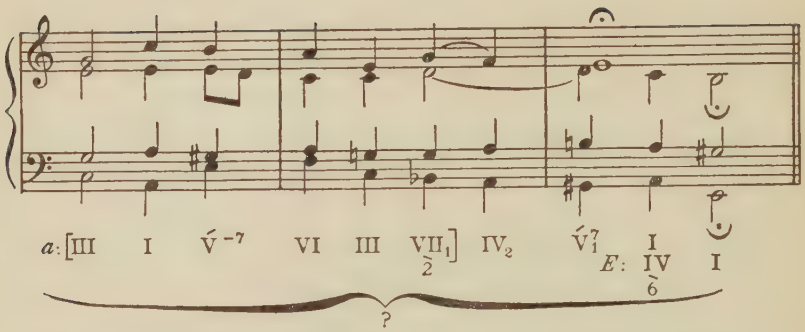
Note that the Dorian, Phrygian, and Aeolian modes have minor thirds, and that the Dorian and Aeolian will both fit into the scheme of a minor mode with variable 6 and 7. The Ionian is our major mode, and both the Lydian and Mixolydian modes have major thirds. Thus three of these old modes are major from the harmonic standpoint, and three are minor. Bach's problem in adapting the chorale-tunes which show modal influence is always ingeniously solved, but the harmony of the phrases thus influenced is apt to perplex the student unacquainted with modal melodies. The farther one's knowledge of this type of melody is extended, the better it is for one's musical perceptions. The Gregorian Chant of the Roman Church is a vast treasury of melodies in modes other than the common major and minor. So also is the folkmusic of nearly all Western peoples, though the student of this subject should be warned that there are editors who tamper with the traditional versions in order to bring them

into line with the two modes conventionally employed for harmony.

The following chorale is an example of the problems which confront the analyst when the tune shows modal influence; for the purpose of greater clarity, the modulatory chords are all symbolized from both possible points of view, that of the old key and that of the new:

Aus tiefer Not schrei' ich zu dir (10):





Play over the melody of this chorale several times before studying the harmony. Of which of the Church modes does it show the influence?—What particular melodic interval distinguishes this mode from the other five?—Judging from the tune alone, in what key would you place each phrase, i.e., what is the predominant tonality of each phrase if one judges simply according to the arrangement of the melody-tones?—Does Bach agree with you?—

Do you think this harmonization ought to receive an analysis according to the strict interpretation of tonality?—Would you prefer to regard the first phrase as entirely in *a*?—

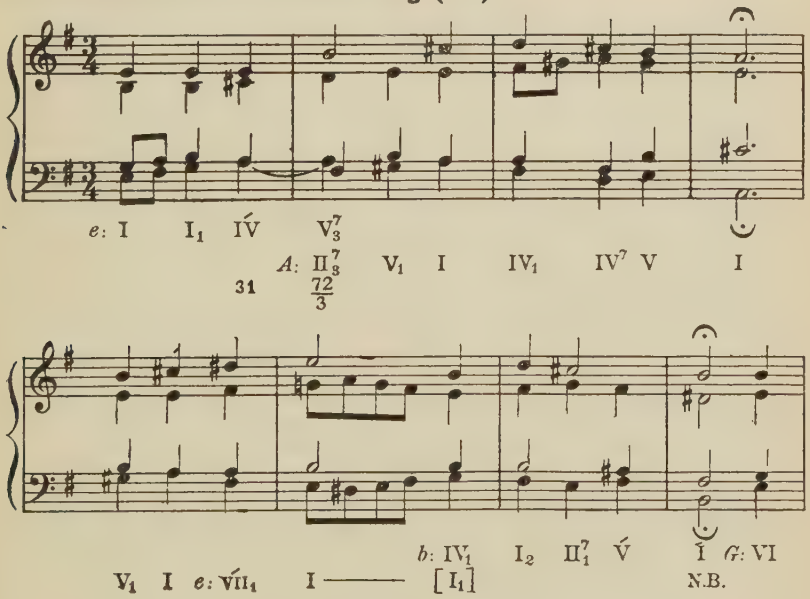
As analyzed in the text, notice that in the first phrase the cadence would finish quite naturally in *e*-minor but for the sharping of the G. This type of ending of a passage entirely in the minor mode is so common with Bach that it is difficult to find exceptions. (See any Music Dictionary, under *Tierce de Picardie*.) It would seem most practical to call this a Í (One-acute) *in minor*, since all the chords except the final tonic point to the minor mode.—The harmonic formula (VI-III-IV-V́) which concludes the second phrase is often called 'Phrygian cadence-formula.' Why?—The first and second phrases are repeated as third and fourth. The fifth and sixth present no special difficulties. The analysis of the last phrase, as given, seems to the author highly questionable. There is no doubt that the last three chords were thought of by Bach as Dominant and Tonic in *a*-minor with a last yielding to the influence of the melodic tone-centre, E. Would the final cadence have been satisfactorily *conclusive* if Bach had ended the chorale otherwise than with a chord on E?—Would it be better to represent the first six chords of the phrase by color-symbols?—

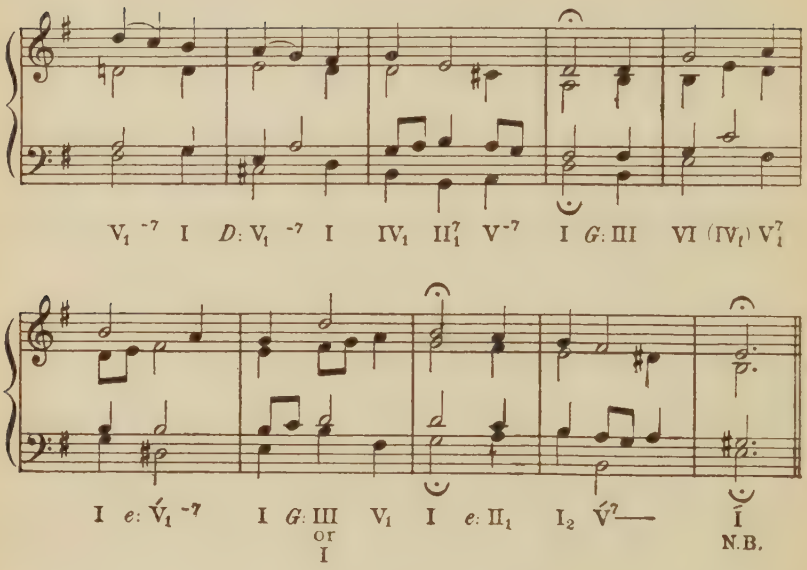
Determination of chord position when Bass crosses Tenor

There is but one more item likely to puzzle the student of the Bach four-part chorales. The true Bass is always indicated

by the note-stems in the Bass clef, which go down while the stems for the Tenor notes go up. For the purposes of analysis, passages in which the actual pitch of the Bass is above that of the Tenor,—i.e., when the Bass part 'crosses' and sings higher than the Tenor,—are to be considered as if they were accompanied by the organ or the orchestra, in which cases the Bass would be *duplicated an octave below* by the organ-pedals or by the double-bass viol. Therefore that part on the lower clef which has note-stems going *down* is always to be considered as the true Bass, and the chord-position determined accordingly. In the chorale which follows, the fourth chord is a case in point: the true Bass is A, not F♯, and the seventh-chord B-D-F♯-A is thus in third inversion, not second. Modal influence is operative in the tune, but this time the tonality is scarcely in doubt, though the third and fourth chords might be considered vague as to key:—

Erschienen ist der herrliche Tag (17):





The analysis of other four-part chorales of Bach as contained in the Breitkopf edition should now be undertaken. The actual technic of analysis can usually be facilitated in a class of students by requiring each one to spell the chord in fundamental- or root-position first, then to specify the Bass-note, and finally to name the symbol. For example, in the preceding chorale: "The key is *e*. The first chord is E-G-B on E = I. The second chord is the same, but on G, = I_1. The third is A-C-E on A = IV. The fourth is B-D-F-A on A; it's a second-species seventh in third inversion and the tonality puzzles me, or it might be considered to be in *A*, in which case it is II_3^7, etc."

If the analysis is written down outside of class, the method may be adopted of using the metric plan of the chorale as a diagram, writing the symbols between measure-bars in this manner:

Erschienen ist der herrliche Tag (17)

$\frac{3}{4}$ *e*: I I_1 $\acute{I}V$ | *A*: II_3^7 V_1 I | IV_1 IV^7 V | I — — | V_1 I *e*: $v\acute{i}_1$ | I — *b*: IV_1 | I_2 II_1^7 $\acute{V}$ | $\hat{\acute{I}}$ — etc.

Observe that the chord which occupies more than one *beat* of the metre is followed by *dashes* representing the additional beats.

References to special problems of technic illustrated by the chorales, and citations of them, will be found in their proper place later in the Manual. The student is urged to master the essentials of Bach's style, to note the remarkable freedom of his handling of the four voices and the manner in which he attains beauty and expressiveness in the individual voice-parts. A complete understanding of certain passages is impossible without study of the original German text of the chorales. He who takes time for this study will make many discoveries as to what might be called the *dramatic* significance of certain chords as Bach uses them. The most authoritative edition for the original text is that numbered 3765 in the *Edition Breitkopf,* edited by B. F. Richter, Leipzig, 1898. All evangelical Lutheran churches use a little manual containing the traditional German texts; unfortunately, most of these churches reject Bach's settings as too difficult, though most persons capable of *singing* lower parts are also capable of *reading* the lower voices of Bach. A good English edition (with English words) is *The Bach Chorale Book,* edited by the Rev. J. Herbert Barlow (New York, H. W. Gray Co., 1925), which contains a Tune Index with the German titles which can be used to identify the chorales, though but one hundred settings are included.

Whenever the personnel of a harmony class makes it possible, the chorales should be sung regularly in parts, *unaccompanied.* Sopranos and Altos should exchange parts when the range permits, also Basses and Tenors, even if the Basses have to sing *falsetto.* The chorales can be transposed to make this procedure easier. At the Eastman School, the ordinary letter-names of the notes are sung when reading at the written pitch; the neutral syllable *la* can also be used; transposition is effected, as in France, through mentally changing the clef. (See Appendix B.)

Before beginning the practice of writing harmony, the following chorales of Bach should be analyzed and thoroughly discussed:

Freu' dich sehr, o meine Seele. Compare No.'s. 29, 64, 67, 76, and 282.

Allein Gott in der Höh' sei Ehr'. No. 326. Cf. No. 125.

Was Gott tut, das ist wohlgetan. No. 65. (Inharmonic tones with simple harmony.)

Ermuntre dich, mein schwacher Geist. No. 102.

Herr Jesu Christ, dich zu uns wend'. No. 136.

Wer Gott vertraut, hat wohl gebaut. No. 137.

Aus meines Herzens Grunde. No. 1.

Christus, der ist mein Leben. No. 6. (Contains a chromatic chord.)

Schmücke dich, o liebe Seele. No. 22.

Herr, ich habe miszgehandelt. No. 33. (But Bach has not mishandled the minor mode in this masterly setting.)

PART II

THE STUDY OF TRIADS

FIVE-FOLD PLAN OF STUDY

THE SECOND PART of this manual consists of a detailed study of the triads of the major and minor modes. The method of study is usually five-fold, presenting the material from five coördinate points of view, any one of which may be stressed in accordance with the special need of a student or group of students.

Vocalises. The characteristic intervals of the chords studied are first presented in the form of *vocalises*, to be sung at sight and practised if necessary. They are placed in whatever key seems suitable for both men's and women's voices.

Tables of Chord-Successions. The technic of the connection of one triad with another or with others is then illustrated by tables of typical chord-successions in four-part harmony. These tables are intended to show the more common possibilities of arrangement.

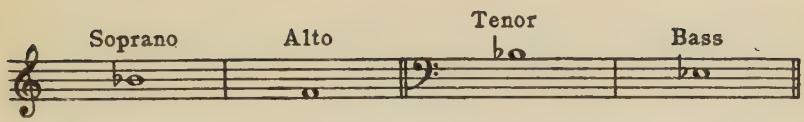
Keyboard Harmony. All major-mode successions are tabulated in *C*-major, while those for the minor mode, when specially needed, are in *a*-minor. The student is expected to reproduce these successions at the keyboard of the piano in all other keys. Frequently special exercises are assigned, to be worked out at the keyboard.

Musical Dictation. The subject-matter is then taken up from the standpoint of the ear, the student being required to

listen to the chord-successions when played on the piano and to note them down in the system of symbols already explained. As musical dictation reverses the process characteristic of keyboard harmony,—in the latter the chords being played when their symbols are given, in the former, the symbols being written when the chords are played,—the shorter exercises under these two headings may be exchanged. The greater portion of the exercises in dictation are intended for the practice of students among themselves, away from the class-room. For class-room use, the instructor should compose special exercises. In view of the fact that only the exceptional student can hear harmony when there are rhythmic irregularities, the earlier exercises for dictation are purposely made extremely simple in rhythm. Having a complete 'stenographic' reduction of the exercises dictated, the student may, at the teacher's discretion, be required to write these out in full four-part harmony, thus supplementing the regular written work.

Harmonization of Melodies. Finally, after the student has sung the intervals of the chord he is to use, has learned their arrangement in harmony, can play them at the piano and analyze them when played to him, he is invited to apply his knowledge and demonstrate his ingenuity in the harmonization of given melodies. No rules are given him, though he may deduce his own from the material as it is here presented. The characteristics of good four-part writing should become apparent after a thoughtful scrutiny of that material and a familiarity with the chorale-settings of Bach.

The approximate range of each choral part is an octave plus a fifth (twenty chromatic notes). The central notes of each part, in the vicinity of which should lie the *melodic mean* for that part, are these:

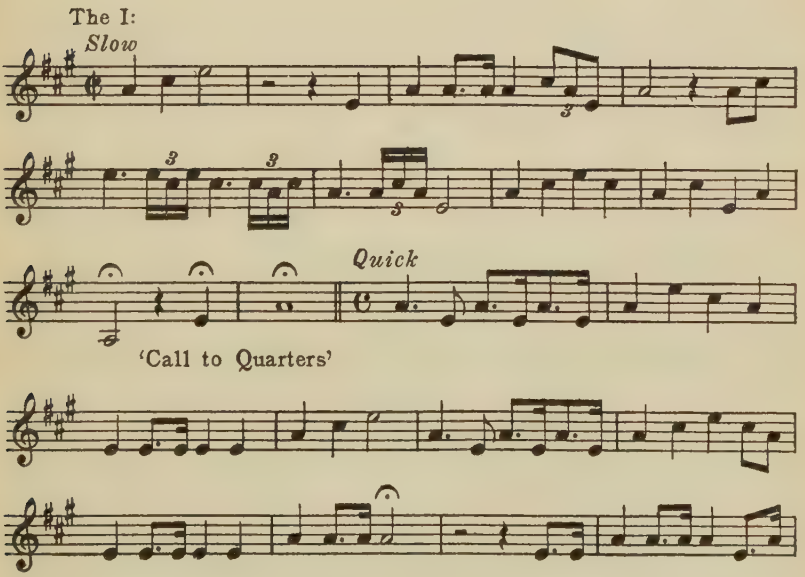


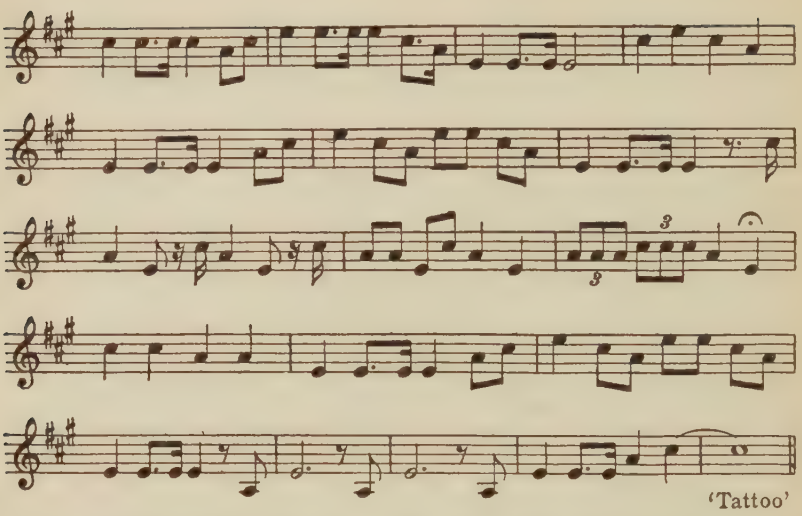
The piano, while it is the most convenient single instrument for reference in the study of harmony, should be considered imperfect as a medium through which to judge the effect of four-part choral writing. The imagination must be called upon to *sustain* the tones in the manner of the human voice or of stringed instruments.

The practice is recommended of employing the Great Staff for choral writing in four parts, Soprano and Tenor note-stems being turned up while for Alto and Bass they are turned down. For this reason the *Melodies to be harmonized* are printed with note-stems up. When in the judgment of the instructor, students are ready to write each voice on a separate staff, it is well to accustom them to the C-clefs employed in orchestral scores by requiring the Alto and Tenor parts to be written with C on the third and fourth lines, respectively.

THE TONIC AND DOMINANT TRIADS (I and V)

Vocalises:

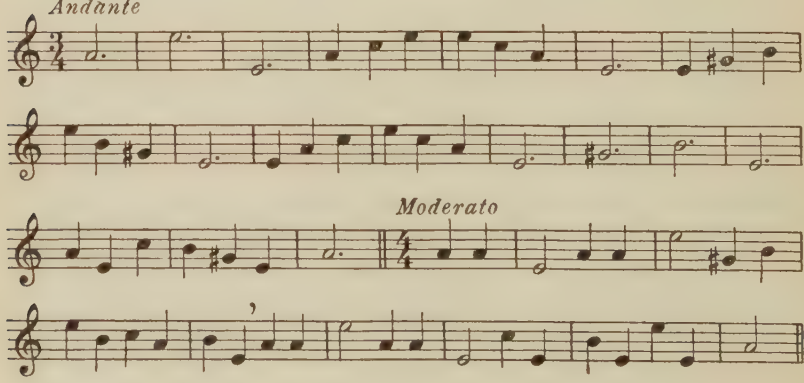


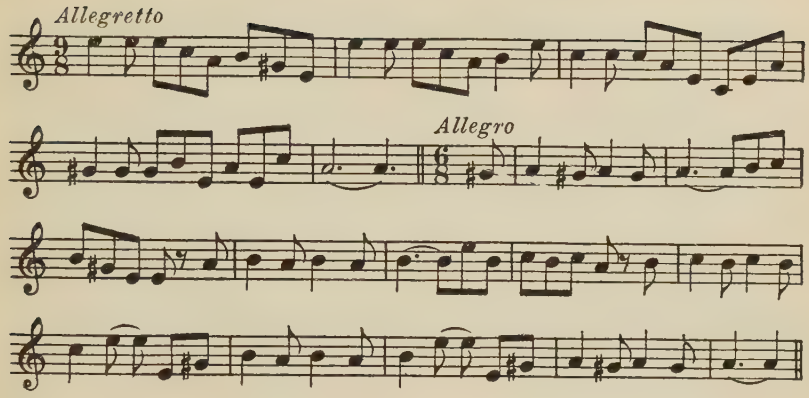


The bugle-calls above are two of those used in the American army. Others can be found in the appendix of the Infantry or Cavalry Drill Regulations. In spite of the violence done to the Harmonic Series, we recommend the alternate singing of these as *vocalises* with the three sharps of the signature omitted, making the chord the I in *a*-minor.

Sing the following exercises 1) as written; 2) with the signature of three sharps; 3) with g♮.—

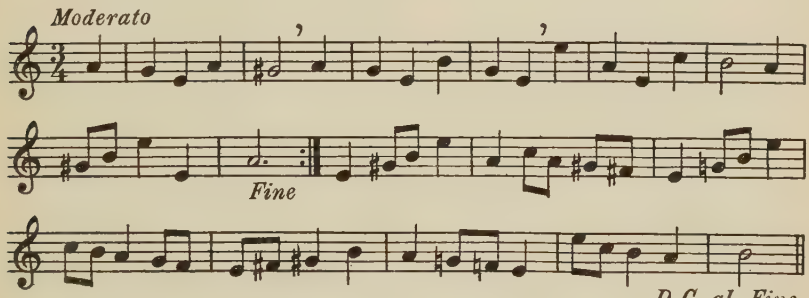
The I and V (V and V̌ in minor)



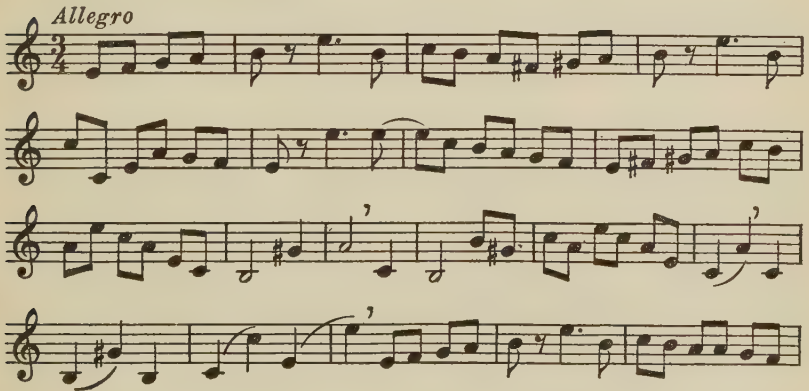


To be sung exactly as written:

7 and $\tilde{7}$ in the V: Minor mode.



6-7 and $\acute{6}$-$\tilde{7}$: In minor



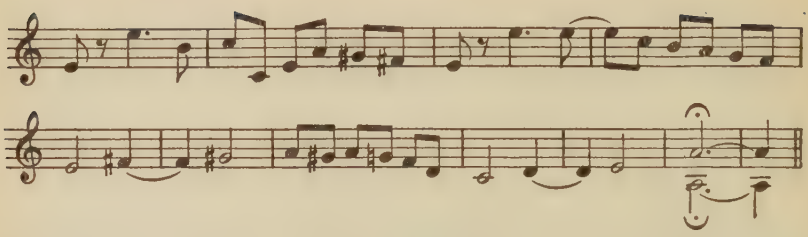
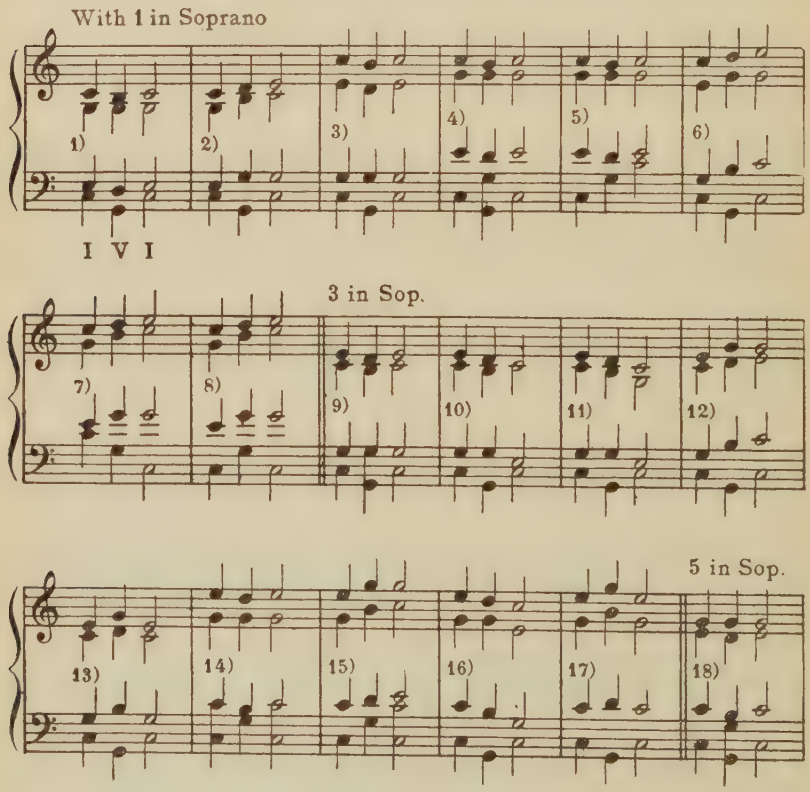
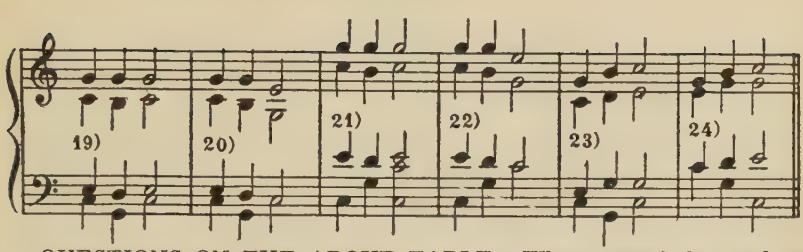


Table of the connection of V and I. (V́ and I in minor.)

Note: If two notes have the same stem, either may be chosen in the part indicated. Certain successions may of course be duplicated with every voice an octave higher without exceeding the normal limits of range.





QUESTIONS ON THE ABOVE TABLE: What note of the triad *exclusively* is doubled?—In 3) the arrangement of voices is spoken of as 'in open position.' In 4) the parts are 'in close position.' Define accurately the difference. Apply your definition to the other examples, stating whether they are in close or open position. Notice that in 4) it does not matter whether the Bass takes the upper G or the lower: the 'position' is unaffected. Does the arrangement ever change from close to open position or vice-versa during the same succession?—

Compare 1) and 2). The tone common to the V and I is, of course, G. What happens to this tone in 1)?—in 2)?—What could be said *in general* of the coördinate movement of the other parts in all the cases of I-V when G remains in the same voice? (Taking the first two chords only of each succession.)—In all the cases of V-I? (Taking the last two chords.)—Repeat these questions for the successions in which the common tone is *not* kept in the same voice.

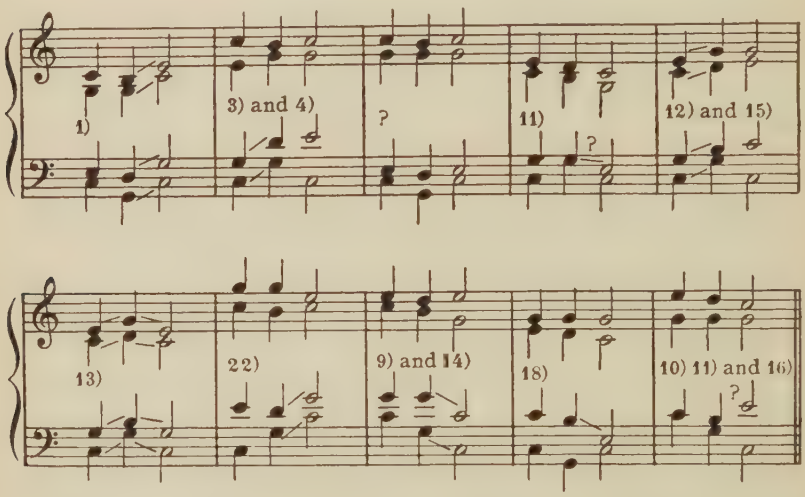
Observe the melodic movement of each of the three upper parts. Is there any reason why the succession 8-7-5, occasionally appearing in an inner voice, should not be written for Soprano?—Try 23) and 24) with the chords in *inverse* order. Is 8-7-5 in Soprano possible in either form of the minor mode?—Within what melodic intervals do any two of the three upper voices always move?—Are the intervals of the Bass to be considered as *melodic skips* or as *harmonic steps?*—

In 8) and 15), all the voices move parallel in the first two chords. This involves what are termed 'hidden octaves.' Do you object to the parallel movement, and do you hear the octaves?—Cf. 8) with 7). Which do you prefer?—Cf. 10) with 11). Which do you prefer?—Why?—Which does Bach prefer?—Why?—

By changing the signature to three flats and using a ♮ before all the B's, the successions of the table become I-V́-I in *c*-minor. In three flats, without touching the B's, the successions are I-V-I. This V may be called V̀ ('Five-grave') to distinguish it from the other, or it may be called the 'Aeolian Dominant.' Play the table through, using first V́ in minor and then V (grave). Which is better suited to the *character* of the minor mode? Is there any reason why a composer should not use both? (See Bach Chorales, No. 190, first chord; No. 28, third chord; No. 66, second phrase—modal tune—; No. 91, sixth phrase; No. 104, both forms of V in first phrase; No. 119, 2nd phrase; No. 245, both forms in 1st phrase.)

COMMON ERRORS IN THE USE OF I WITH V.

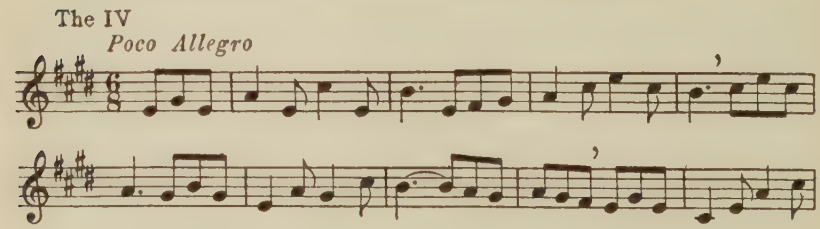
These errors are exemplified, but not discussed. The objectionable progressions in one voice, or in more than one at the same time, are marked by diagonal lines. The numbers refer to the examples in the previous table, with which these successions are to be compared. In every case, the student must make sure he knows *why* the progression is objectionable. The last example given here may be found many times in the Bach chorales. Why is its use *now* an error?

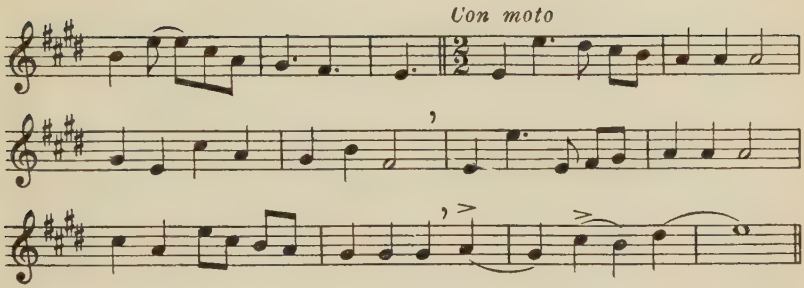


THE TONIC AND SUBDOMINANT TRIADS (I and IV)

Vocalises:

To be sung also with the signature of one sharp:





To be sung also with the signature of 2 flats:

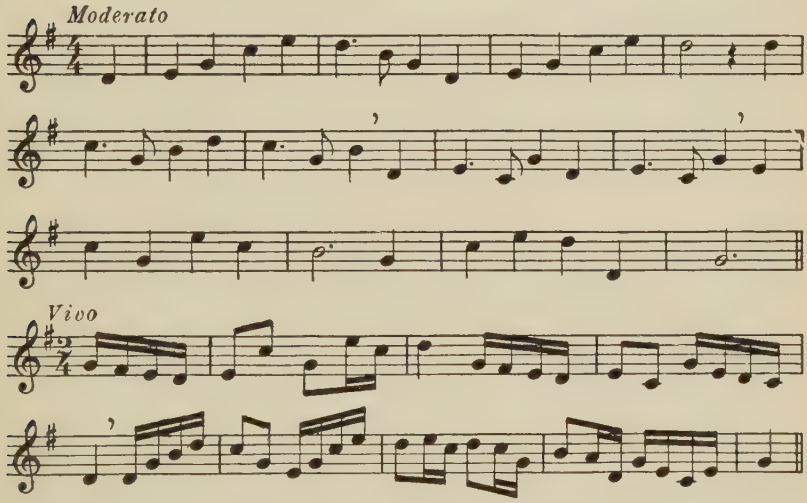
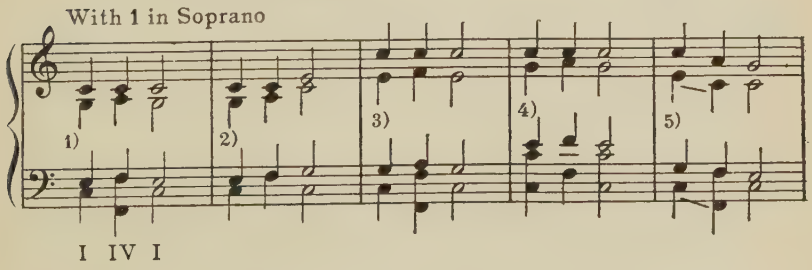
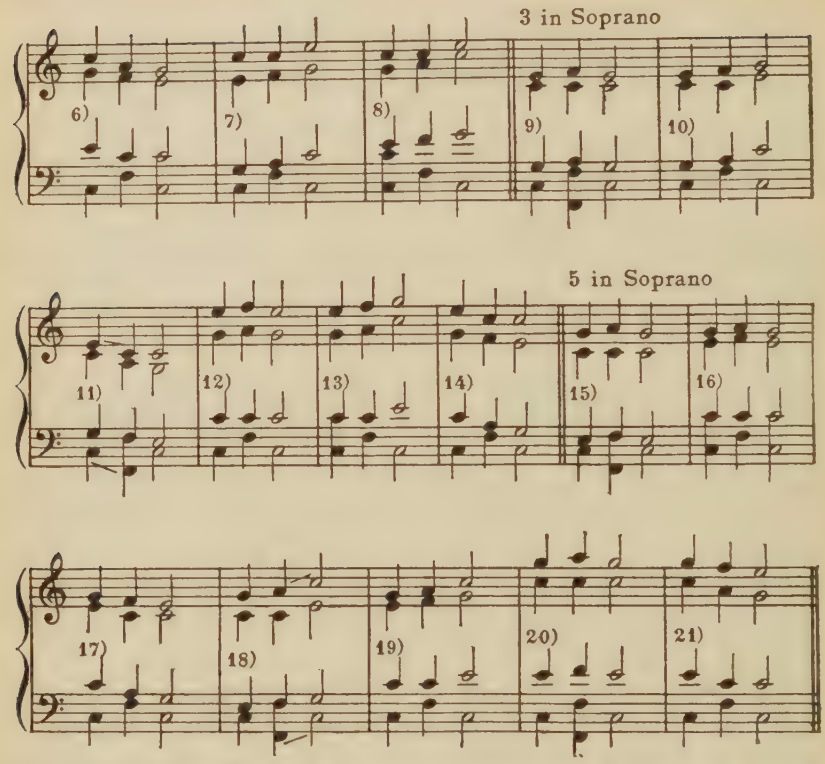


Table of the connection of IV and I (both modes)





QUESTIONS: Which of the above successions are in close, and which in open position?—Does the arrangement ever change from close to open position or the reverse during the same succession?—Taking the first two chords only of each succession, compare the coördinate movement of the other parts when the common tone (c) remains in the same voice with that movement when it does not. (I-IV). Repeat this inquiry for the succession IV-I.

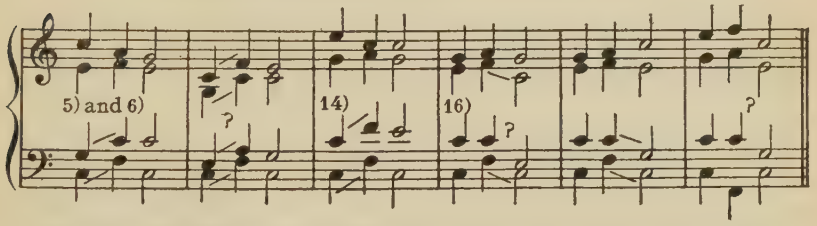
These successions being typical of the smoothest possible connection of IV and I, and, in the previous table, of V and I, what can you say of the limitations to be placed on the melodic movement of the three upper parts when it is desired to connect *smoothly* either V or IV with I?—

In 5), if the lower Bass be employed, there are said to be 'hidden fifths' between Bass and Alto. These are objected to by the strictest purists in part-writing. Cf. 5) with the upper F in Bass, also 6). Try 6) with a low F in Bass. Are the 'hidden fifths' any more objectionable in close position than in open?—Consider 11) from the same standpoint; cf. with 14). Examine 18) for 'hidden octaves.' Do you consider these 'hidden fifths and octaves' more objectionable

when they occur between the two outer parts than between others?—Cf. the choices of Bass in 11) and 18). If the upper c were put in the Bass in 13), there would be 'hidden fifths' between the outer parts of the last two chords. After a thorough consideration of all these cases, find instances of 'hidden fifths and octaves' in the Bach chorales. Is there any case discoverable of parallel *skips* in the two outer voices which terminate on a fifth or octave?—What is your conclusion as to the writing of 'hidden octaves and fifths?'—(See p. 159.)

By changing the signature to three flats, the successions become I-IV-I in *c*-minor. Try the a♭ of IV. *Which part* of the succession is thereby invalidated?—Why?—What of the Soprano succession in 18) and 19) in the minor mode?—

COMMON ERRORS IN THE USE OF I WITH IV:

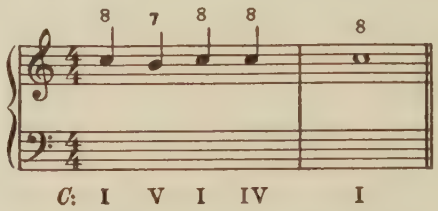


Keyboard Harmony: The first practice in keyboard harmony should consist in duplicating the successions I-V-I and I-IV-I as given in the Tables, starting with 1 in Soprano, then taking 3, and finally 5. The chords should always be played in strict four-part harmony. The instructor may then require the successions to be played in any order, prescribing the Soprano and open or close position for the first tonic chord. Both modes and both minor V's are of course to be included, and the successions played through the cycle of keys. (See p. 13.)

The following successions should also be played in both modes with all three Sopranos in turn:

	8	7	8	8	8— —			8	8	8	7	8— —
4	3	2	3	4	3— —		4	3	4	3	2	1— —
4	5	5	5	6	5— —		4	5	6	5	5	5— —
	I	V	I	IV	I— —			I	IV	I	V	I— —

Dictation: The symbols in taking harmonic dictation may be arranged exactly as in the previous section when no staff is needed. When the exercise is subsequently to be written out in notation, the following scheme is recommended:



The procedure of the instructor with respect to all but the briefest exercises may be as follows:

1st, Announce the key, but not the mode.

2nd, Play the exercise through *moderato*, asking the student to determine the mode, the metre, and the number of measures. Allow him time to sketch his metrical 'frame' for the notation.

3rd, Play again for *confirmation* of mode, metre, etc.

4th, Ask the student to write the harmonic symbols below the staff, and play the exercise through for this purpose, very deliberately but in strict time.

5th, Play through again to confirm this.

6th, Ask the student to take down the notes of the Soprano: divide the exercise into phrases or phrase-members for this purpose, and play each subdivision *moderato*, without pause, so that the student may get the sense of the melodic line and not take the Soprano note by note. After the first subdivision has been dictated, the second should be played *in conjunction with the first*, then the third with the second, etc.

7th, Ask for the *melodic symbols* of the Soprano, to be written above the treble-clef. The Soprano notes and symbols should

of course correspond in location to the harmonic symbols below the Bass. Play *Adagio* for this to be done.

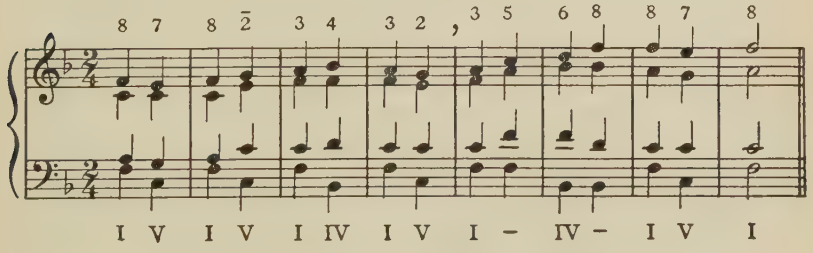
8th, If it seems advisable, the exercises can be played once more 'with special attention to the Bass.' Those who have quick ears should by now not only have the music correctly symbolized, but also completely written out in notation.

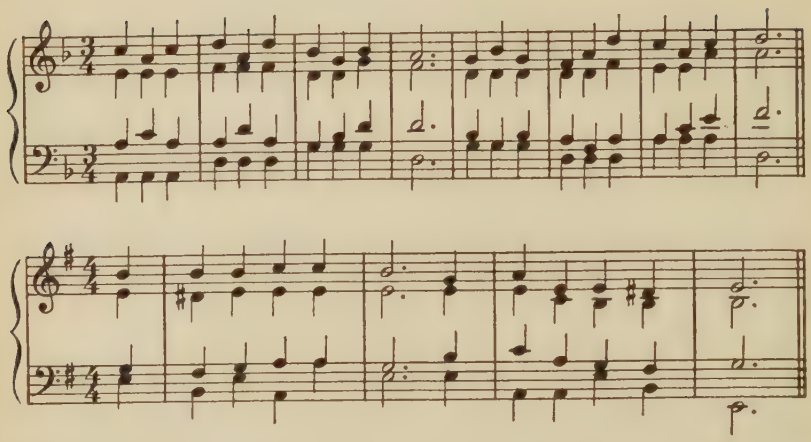
The seventh item may be omitted till the exercises involving modulation are taken up; it then becomes important.

For preliminary practice in dictation, the instructor may use the successions of the tables, alternating I-V-I with I-IV-I and varying the order in any way he sees fit. As in keyboard harmony, both modes and both minor V's are to be included.

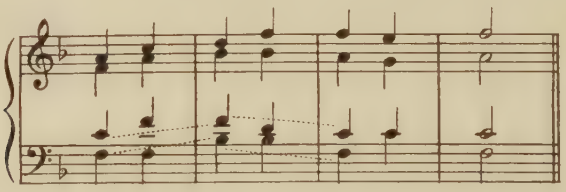
In recording the melodic symbols for the Soprano, it is often necessary to be specific as to the location of a certain tone above or below the tonic, which is indifferently 1 or 8. We recommend the use of a dash *over* the symbol when the interval is to be thought *up*, a dash *under* the symbol when the interval is to be thought *down*. For example 8-2 in the subsequent exercise would ordinarily be interpreted as a descending *seventh*. A dash over the 2 inverts the interval, making it an ascending *second*.

Exercises for Dictation (I, V, and IV):





Compare the following version of the last four measures of the *F*-major exercise with that given above:



The parallel fifths occurring between Bass and Tenor on the strong beats of three of these measures are objected to by strict purists, and are forbidden in certain well-known treatises on harmony, notably those of Reber and Dubois, in use at the Paris *Conservatoire*. Parallel octaves or unisons of the same type are also banned. Other theorists old and new, such as Fétis, Riemann, Rimsky-Korsakoff, Gevaert, Prout, Kitson, and Goetschius, make little or no mention of this detail of technic, and disregard the prohibition in their model chord-successions.—Note that the parallel interval occurs after an intervening chord on a weak beat which repeats the previous chord-structure but changes its arrangement.

Beethoven refers to this prohibition in the notes he made as a student with Albrechtsberger, who permitted parallel fifths or octaves occurring on two successive strong beats in *two-part Counterpoint* except when the first interval involved was quitted by a skip of a third! This liberality was too much for Beethoven, who vowed he would never make use of the license accorded him,—

quite rightly, since any sensitive ear would object to the effect of such successions when there are but two voices. [See, in English, *Albrechtsberger's Thorough-Bass, Harmony, and Composition,* London, Novello, 1855,—Examples 619 and 620.]

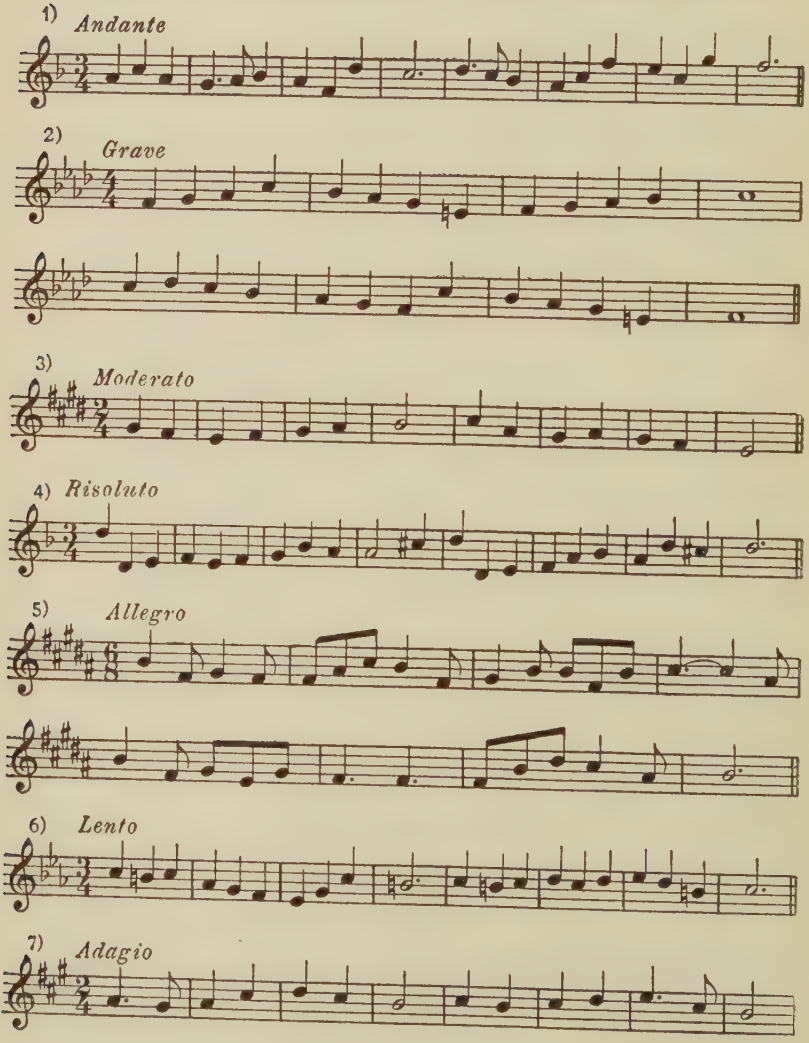
In four-part harmony, such questions are, in the author's opinion, a matter of individual taste, and the student must decide for himself whether or not the musical effect is tolerable. If he hears the fifths or octaves as parallel, it would be advisable not to write them when dealing with voices in the simple four-part style. It is difficult to find clear cases of this sort of thing in Bach, owing to the prevalence of unessential tones. Unequivocal instances occur, however, in the following chorales: No. 5, phrase 8 (Soprano and Alto); No. 6, phrase 1 (Bass and Tenor); No. 8, phrase 4 (Bass and Tenor); No. 41, phrase 5 (Bass and Soprano); No. 45, phrase 1 (Bass and Soprano); No. 67, phrase 6 (Tenor and Alto), and doubtless elsewhere. They will occasionally be found in the *Exercises for Dictation* in this manual.

The exercises in dictation may be used as models for those to be dictated in class, which should be composed by the instructor, and also as models for the harmonizing of the melodies given in the next section.

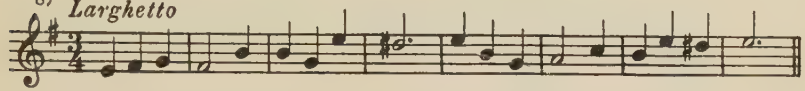
The student should note carefully the precise limitations within which he must at present work: 1) the choice of chord (I, V, or IV) is very strictly determined by the note of the given Soprano; 3 must be harmonized by the I, 4 and 6 by the IV, 2 and 7 by the V; 1 may be harmonized by either I or IV, 5 by I or V, and in case of a *repetition* of 1 or 5 at the same pitch, it is well to change the chord, or else re-arrange the parts. This is a good general principle. (Third Dictation exercise, first complete measure.) 2) The IV and V are not yet to be used in succession. 3) When the melody skips an interval greater than a third, the chord remains the same, though differently arranged. 4) *Except at the beginning of a new phrase,* the triad on the strong beat of the measure is never the same as that on the last beat of the preceding measure. What is the rhythmical reason for this? 5) In the succession V-I-IV, or IV-I-V, the

Bass does not proceed by two successive fifths or fourths *in the same direction.* Why not?

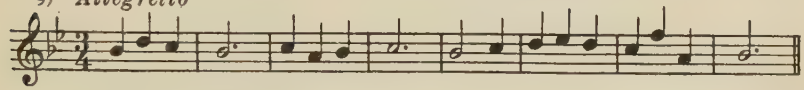
Melodies to be harmonized (I, V, and IV, but not IV-V) :



8) *Larghetto*

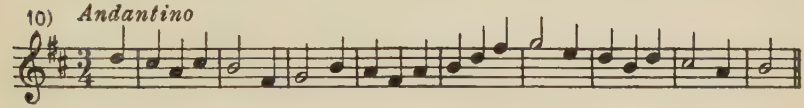


9) *Allegretto*

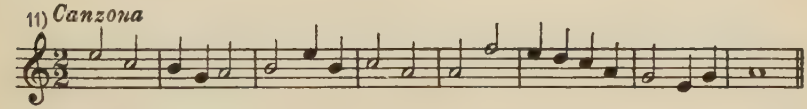


With the Aeolian V:

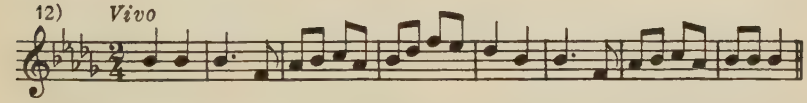
10) *Andantino*



11) *Canzona*

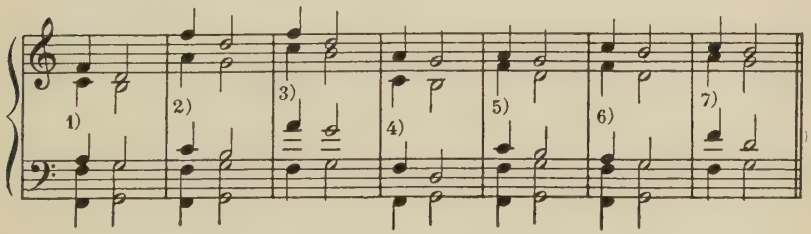


12) *Vivo*



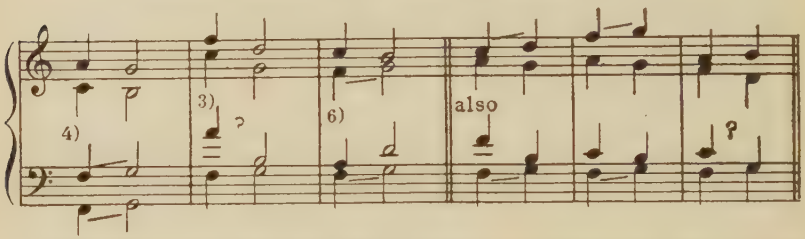
The student should regularly compose and harmonize at least three tunes similar to those given in each section of the manual, one in major, one in the Aeolian minor, and one involving $\acute{7}$ or both $\acute{7}$ and $\acute{6}$ in minor.

Table of the Connection IV-V (minor IV-V and IV-$\acute{V}$):



QUESTIONS: The connection V-IV is purposely avoided, and when the three principal triads are used as a terminal group, the order is invariably IV-V-I. Why?—Is there any variation, in any of the examples, of the melodic successions, 6-5, 8-7, and 4-2, found in 1)?—Why are not the successions 6-7 and 1-2 employed?—What is the invariable coördinate movement of the three upper parts with respect to the Bass?—Note the absence of a 'common-tone.'—Change the signature to three flats for the Aeolian minor; raise the B's one half-step for V.

COMMON ERRORS IN THE SUCCESSION IV-V:

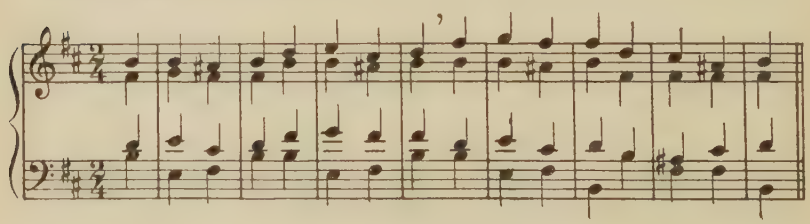


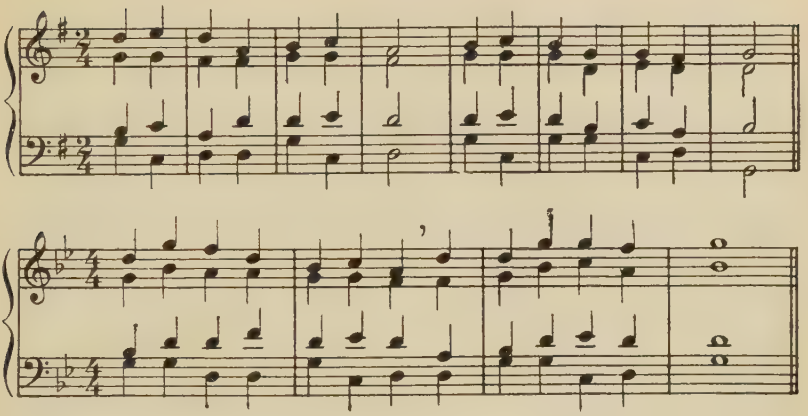
In the error to be compared with 3) there is a change from close to open position. What is the objection?

Keyboard Harmony: Play the following successions in both modes, with both minor V's, in all keys, using each indicated Soprano in turn:

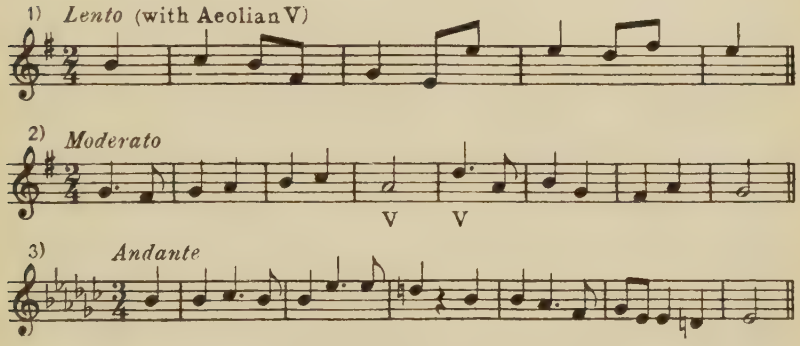
	5	6	5	5—	—			8	8	6	5	7	8—	—
3	3	4	2	3—	—		4	5	6	4	2	5	5—	—
4	8	8	7	8—	—		4	3	4	1	$\underline{7}$	$\overline{2}$	1—	—
	I	IV	V	I—	—			I	IV	IV	V	V	I—	—

Exercises for Dictation:





Melodies to be harmonized: (IV-V)



FIRST INVERSIONS OF I, V, AND IV

Table of V_1-I (major and minor):

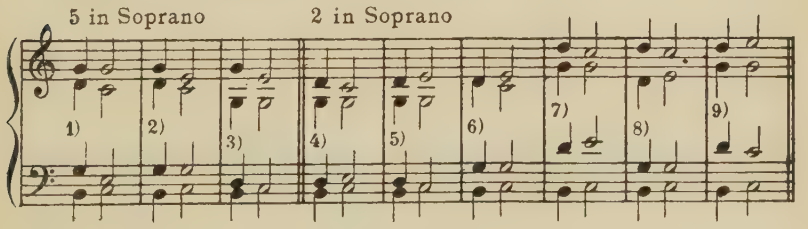
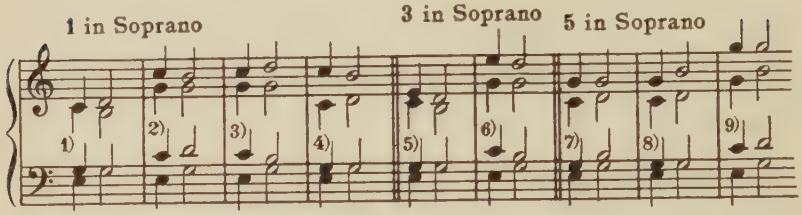


Table of I_1-V (major and minor):



QUESTIONS: In what *voice* does the doubled note of the V_1 or I_1 regularly occur?—Examine the Bach chorales to see whether the note occurring in that voice is usually doubled in first inversions of triads. Is the common tone invariably kept in the same voice?—Reverse the order of all the successions, i.e. play the second chord first and the first second. Will this procedure work in every case of I-V_1?—Of V-I_1?—Examine particularly 7), 8), and 9) in the latter table. What is the matter?—If a different progression of the scale-7th were substituted, would the effect then be satisfactory?—What member of the I_1 would then be doubled?—What do you conclude as to the melodic tendency of 7?—

Transpose the tables to *c*-minor by the method previously suggested. *For TABLES OF THE SUCCESSIONS* I_1-IV *AND* IV_1-I, take G as tonic (supplying mentally the signature of one sharp for major and two flats for minor). Is it possible to use $\acute{6}$ in the $\acute{I}V$ (minor mode) in any direct connection with the I or I_1? (Consider very carefully.) Reverse the succession for IV-I_1 and I-IV_1.

Keyboard Harmony: *The Connection of the First Inversions of the Principal Triads of the Key with the same Triads in Root Position* (except IV_1-V and IV-V_1).

Experiment at the keyboard with the Table of V_1-I, preceding V_1 by V in root-position. Does it matter whether the Bass skips up a third or down a sixth? Precede the V by V_1: does it now make a difference whether the Bass skip is a downward third or upward sixth? Make the same experiment with I-I_1 and with I_1-I. *When chords are inverted, the line of the Bass becomes essentially melodic*, like the line of each other part. What conclusion do you reach?

Play the following successions in both modes with both minor V's:

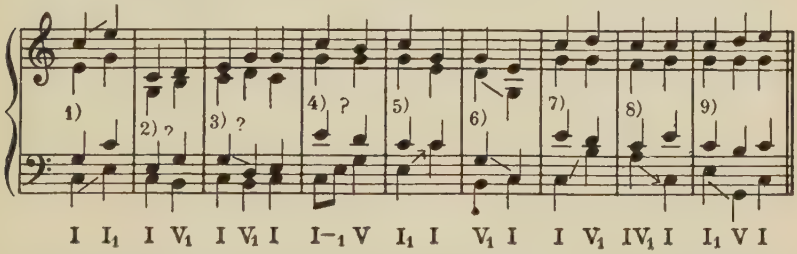
4/4	3	1	6	6	5 – – –	3	5	8	7	8	8	4	3 – –
	I	I_1	IV	IV_1	I – – –	4	I	I_1	V	I	IV_1	IV	I – –

4/4	3	2	1	6	6	5 – –	3	3	5	2	3	4	6	5	5 –
	I	V	I_1	IV	IV_1	I – –	4	I	V_1	V	I	IV_1	IV	V	I –

2/4	1	3	2	5	5	6	5 –
	I_1	I	V_1	V	I	IV	I –

COMMON ERRORS IN THE USE OF I_1, V_1, AND IV_1:

These are numbered in order to be discussed, not with reference to the tables. Each succession may be reversed, except 5).

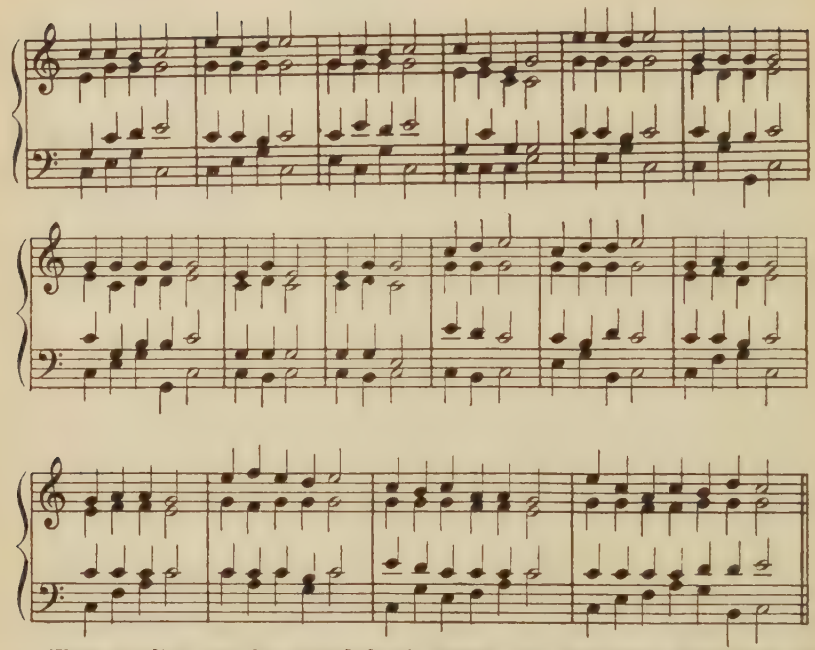


I I_1 I V_1 I V_1 I I–$_1$V I_1 I V_1 I I V_1 IV_1 I I_1 V I

In writing for the piano, 1) would be permitted. Is there any valid musical objection to 3)? Why is the Tenor skip not yet allowed?—In 4) the rhythmic unimportance of the doubled chord-third excuses it. How might the succession be written with its present rhythm and Bass and yet conform to the model succession of I_1-V?—5) and 8) are objectionable as written; would 9) be objectionable in reverse direction?—

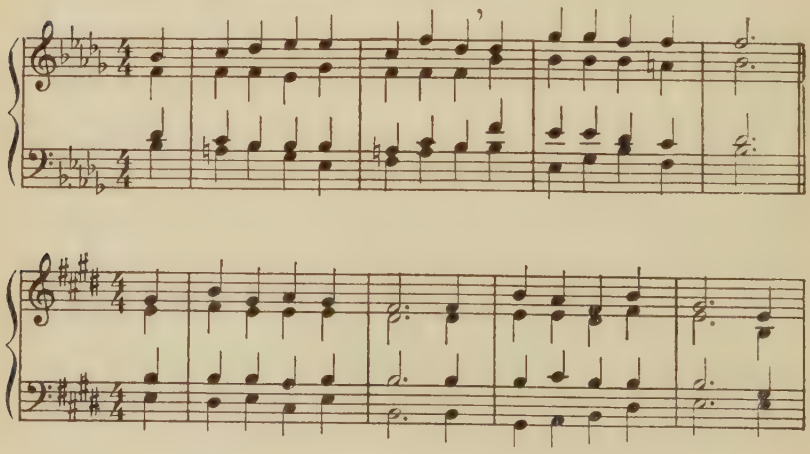
Dictation: STUDY IN DIFFERENTIATION BETWEEN THE PRINCIPAL TRIADS AND THEIR FIRST INVERSIONS.—

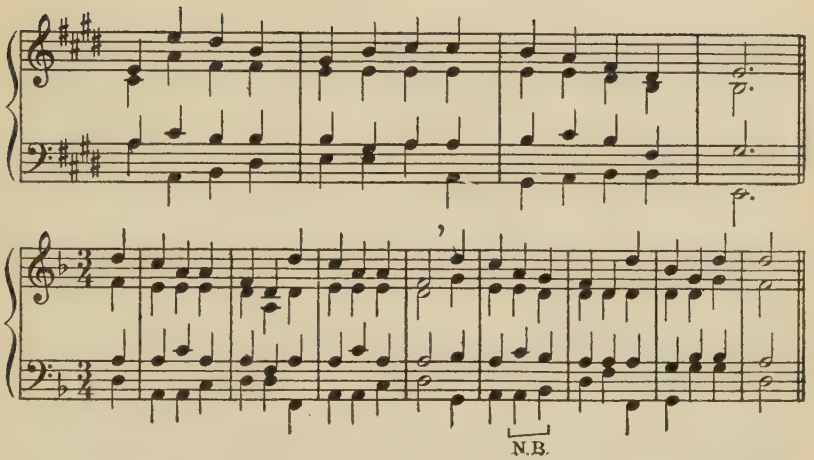
In this and in all similar studies, the instructor may require the Bass-tones to be sung, the student vocalizing on the chord-symbol. Thus, in the first succession, the student sings 'One, One, Five, One,' though the *notes* he sings are C, E, G, C. I on E would of course be the I_1. The arrangement is not metrical, but the last chord should be prolonged.—



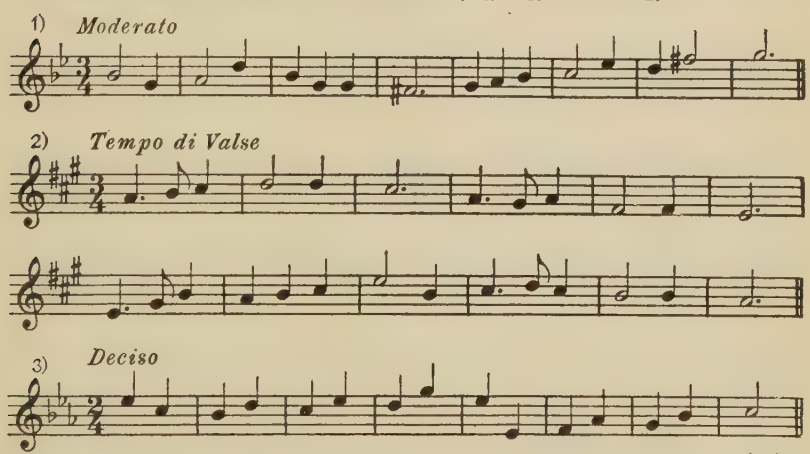
These studies may be extended *ad libitum,* the instructor composing additional chord-successions. They should always be played in both modes and with both minor V's.

Exercises in Dictation:

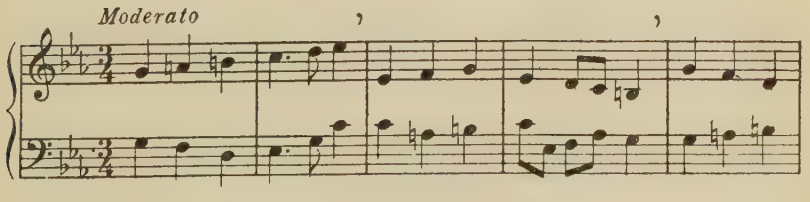


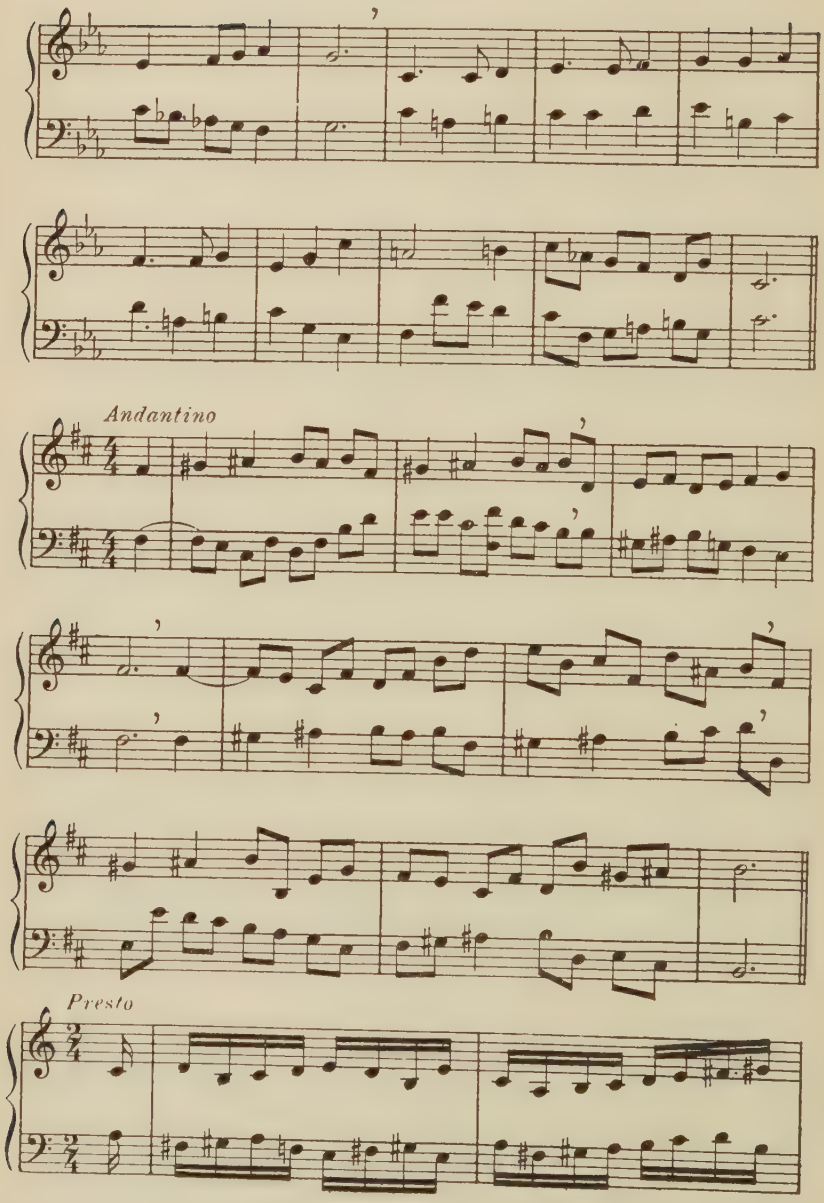


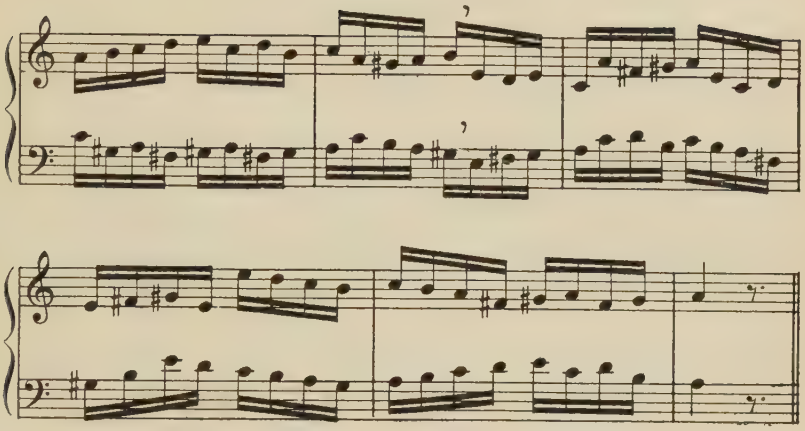
Melodies to be harmonized: (I_1, V_1, and IV_1)



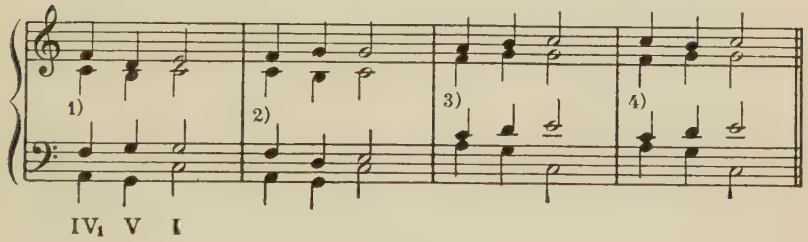
Two-Part Vocalises featuring the melodic succession 6́-7́ in minor.




Andantino
Presto

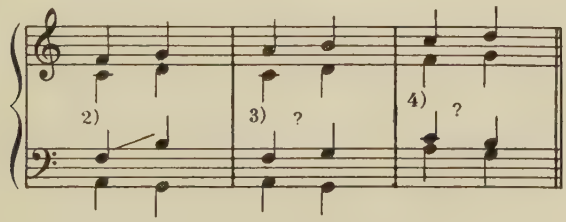


The progression IV_1-V: (with all possible Sopranos)

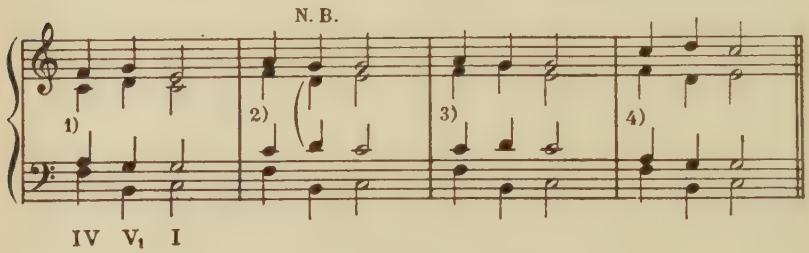


Are these arrangements all valid for *c*-minor with both V's?

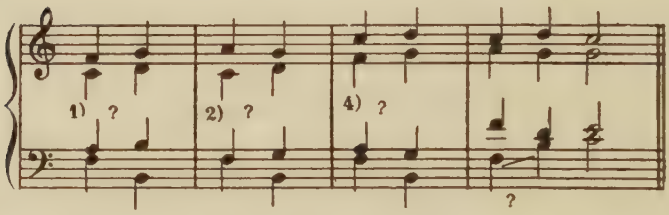
COMMON ERRORS IN IV_1-V:



The progression IV-V_1: Valid for *c*-minor with $\acute{V}_1$; possible with Aeolian V_1.



COMMON ERRORS IN IV-V_1:

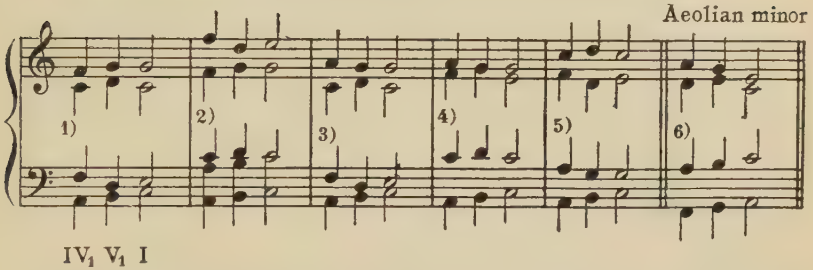


Within what limits do the upper parts move in the progressions IV_1-V and IV-V_1 as tabulated?—Notice that we are still aiming at the utmost possible smoothness in chord-connection, which means the avoidance of all skips greater than a third except when a chord is repeated. Since the succession IV-V_1 demands the melodic 4-7 in the Bass, is it better to skip up to 7 from 4, or down?—

Keyboard Harmony: Play the progressions IV_1-V-I and IV-V_1-I in all keys with all possible Sopranos, and in both modes. In the latter case, do you consider the Aeolian V_1 perfectly satisfactory?

Hitherto, we have by preference doubled the Soprano in first inversions of triads; there is frequent necessity of another doubling in one chord of the following:

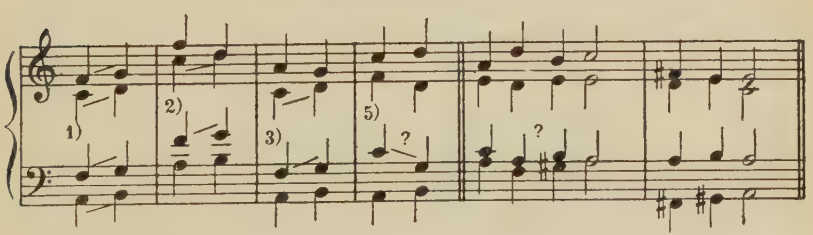
The progression IV_1-V_1 (IV_1-V_1 or $\acute{I}V_1$-$\acute{V}_1$ in minor):



Note that, *for the minor mode, both* IV_1 and V_1 have to be acute, or both grave. Why?—What is the objection to a melodic 'low' 6 followed by a 'high' 7?—To a 'high' 6 followed by 5?—Is a $\acute{I}V$ possible in 3), 4), or 5)?—What note of the scale must be in the Soprano to make $\acute{I}V$ possible? (Minor mode.)

Exercise: Examine Bach chorales Nos. 7, 8, 16, 30, 45, 47, 81, 110, 266 and 267 with special attention to the melodic relations of scale-steps 5, 6, 7, and 8 in the minor mode. Write out a concise summary of these relations.—Nos. 47, 110, and 267 are all settings of the chorale '*Vater unser im Himmelreich.*' Compare these carefully.—In chorale No. 7 (phrase 8, measure 2) there is a skip of an augmented second in the alto voice; under just what circumstances does this occur?—Can you discover any other like case in the chorales?—

COMMON ERRORS IN IV_1-V_1:

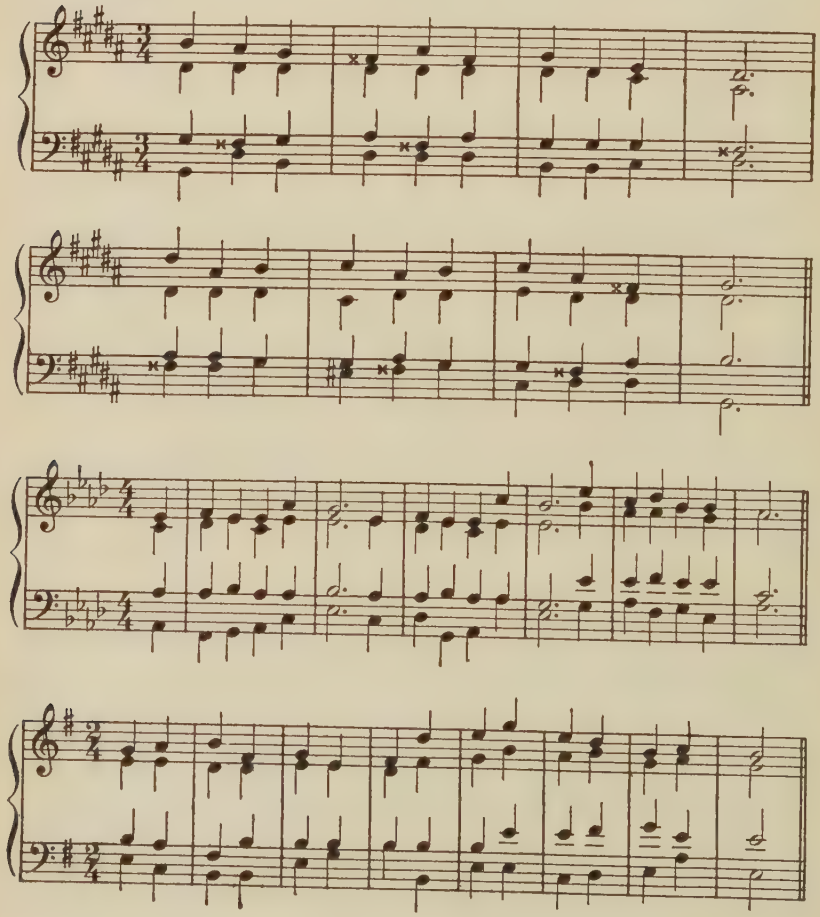


Keyboard Harmony: Transpose from *C* to all other major keys: from *a* to all other minor keys.—

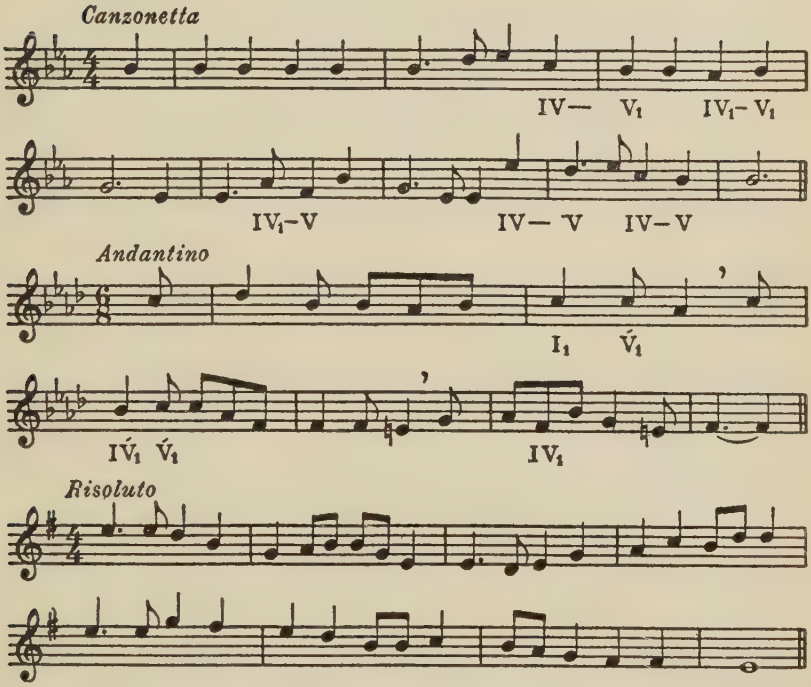
C: $\frac{2}{2}$ 3 I | 4 2 IV_1 V_1 | 3 1 I I_1 | $\underline{6}$ 5 IV V_1 | 5 I ‖ *a*: $\frac{3}{4}$ 3 I | 4 2 3 $I\acute{V}_1$ $\acute{V}_1$ I |

4 6 5 IV_1 IV $\acute{V}$ | 5 – I – ‖ *a* (Aeolian): $\frac{4}{4}$ 8 I | 8 7 5 6 IV_1 V_1 I IV | 5 – – I – – ‖

Dictation:

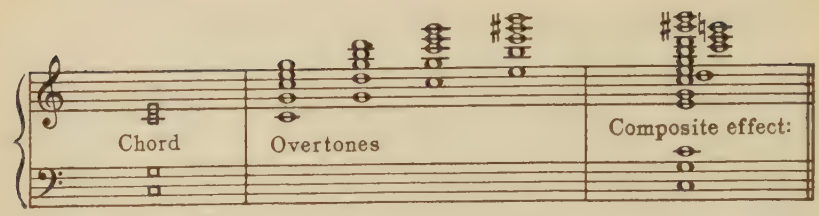


Melodies to be harmonized: (IV_1 and V_1)



THE EFFECTS OF DOUBLING AND OF INVERSION

The composer has to know, to a nicety, the precise acoustical effect produced by changing the bass-note of a chord from the fundamental tone to some other member. The reason for this change in effect, and for the effects of different doublings, can be clarified somewhat by comparing the combined overtones up to No. 6 in the Harmonic Series. For a major triad with the usual doubling, these are:



C: I

In this there are six c's, seven G's (G being an overtone of both c and G), five E's, two D's, three B's, and one G♯, in the order of prominence from low (more important because louder) to high (less important because fainter). The G♯ against the G, for example, is negligible because it occurs so high.

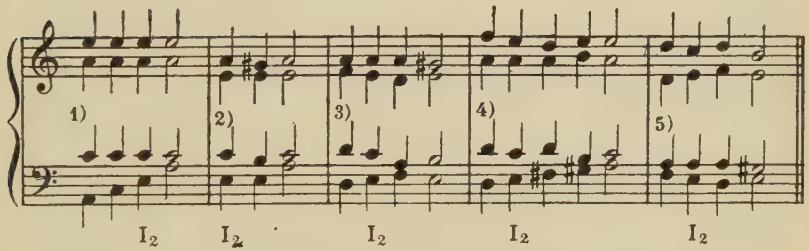
The student should now work out for himself the composite effect of chord-tones plus their overtones when the I in *C* has the fifth doubled, and when it has the third; when the third is in the Bass (with different doublings), and when the fifth is written lowest; and then answer the following queries:

What is the reason for the preferential doubling of root, fifth, and third, in that order, in a triad in fundamental position?—Confining ourselves to the major triad on c in *C*, what is the reason for the preferential doubling of the Soprano in the first inversion? (Remember that, if 3 is in Soprano, there is no choice.)—Which is the weaker in fundamental effect, the first or the second inversion? i.e., which, of I_1 and I_2, gives the weaker sense of *Tonic*?—If we desire to use I_2 as a variant of the Tonic chord, which note should we double?—If we desire to use I_2 as a chord with an active tendency to move to a chord on another root, which note should we double?—The doubling of which tones of the *scale* would strengthen the sense of tonality or key, no matter what chords were involved?

The student may carry this inquiry as far as he cares to go, applying the comparison of composite effects of chord-tones plus their overtones to the species of triads and later to seventh-chords. He should be mindful, however, of THE GREAT EXCEPTION to all acoustical reasons for the arrangement of chords: *an expressive melodic line, in any part, is often worth far more than a merely 'correct' doubling.* Such a line is re-

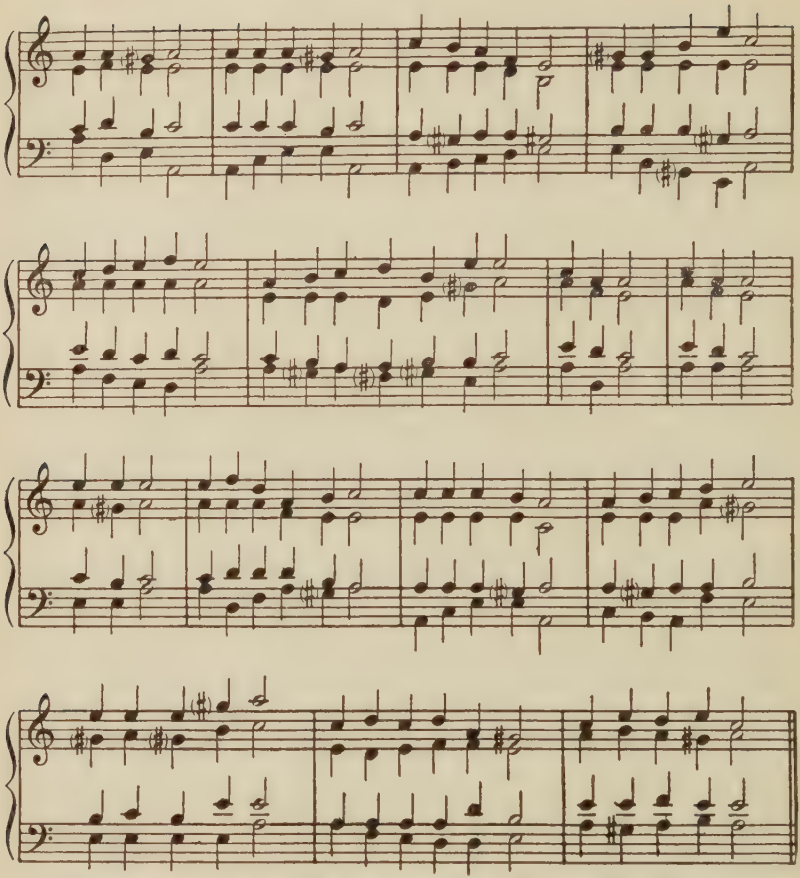
garded as having contrapuntal rather than harmonic justification. A glance at almost any one of the Bach chorales (for example No. 279 on p. 34 of this manual) will bear out this declaration, and reveal that while at the ends of phrases,—i.e., at the cadences,—Bach is apt to arrange his chords for harmonic reasons, during the *course* of the phrase he never hesitates to sacrifice the acoustical effect of a chord as a combination of tones for the sake of an interesting melodic line.

Table of the Uses of I_2:



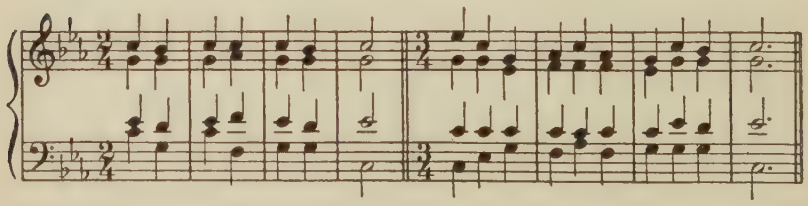
In 1) the I_2 may be said to be used as a variant of I. Define this use.—In 2) the I_2 may be said to be preparatory for the Dominant. It is very frequently so used in cadences. Why?—In 3), 4) and 5) the I_2 is used in a manner described as 'passing.' Why?—Note that, in relation to the chords which precede and follow, the common-tone remains in the same voice. Examine carefully the handling of the other voices when the Bass moves up,—3) and 4),—and when it moves down,—5).

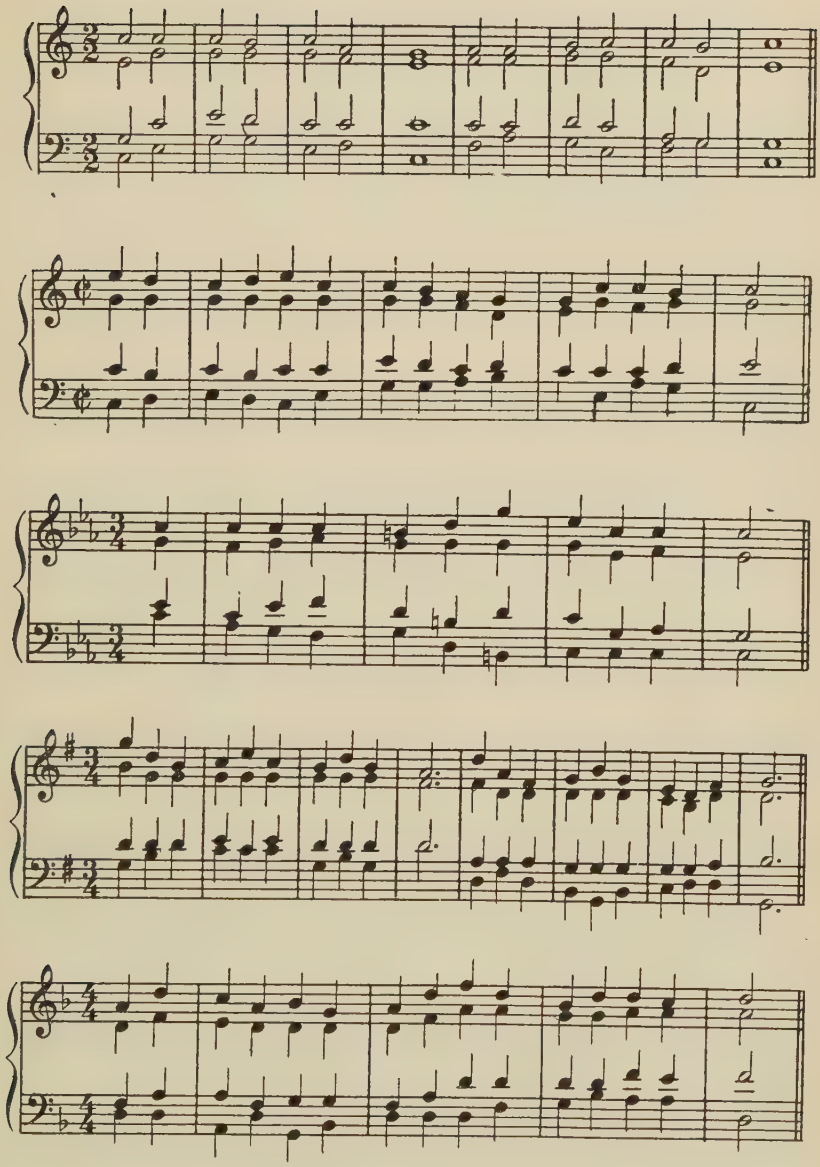
Keyboard Harmony and Dictation: The following exercises are a study in differentiation between the various possible arrangements of the I, V, and IV. Further, they exemplify the typical uses of the **Second Inversions** of these three principal triads. All successions possible in major should be played also in that mode. The minor 6 and 7 are noted as variants whenever possible. When $\acute{6}$ is used, $\acute{7}$ *must* be. Why?

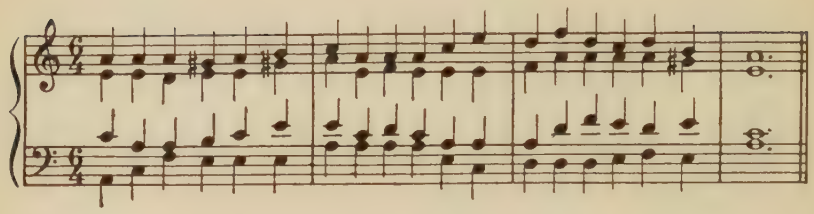


Are there as many uses of the IV_2 and V_2 as of the I_2?—Would it be effective to follow one second inversion by another?

Exercises in Dictation:







Melodies to be harmonized: with as many second inversions of I, IV, and V as seem musically effective.

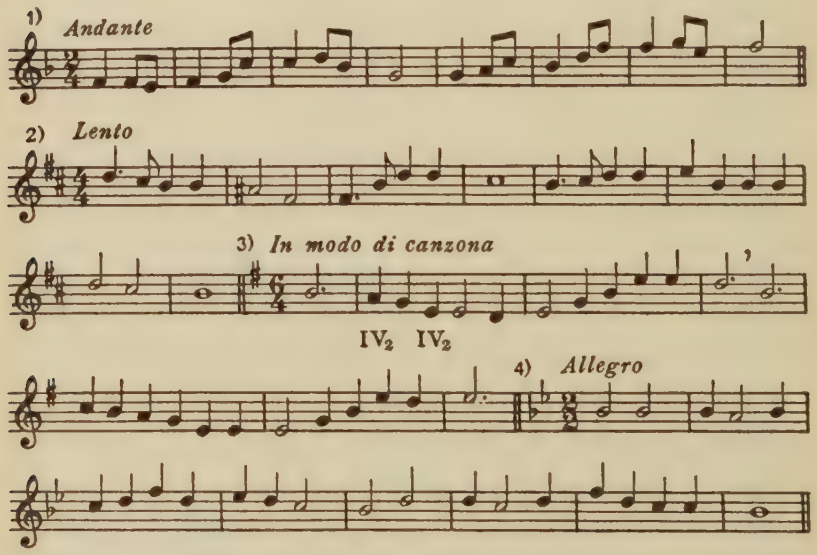
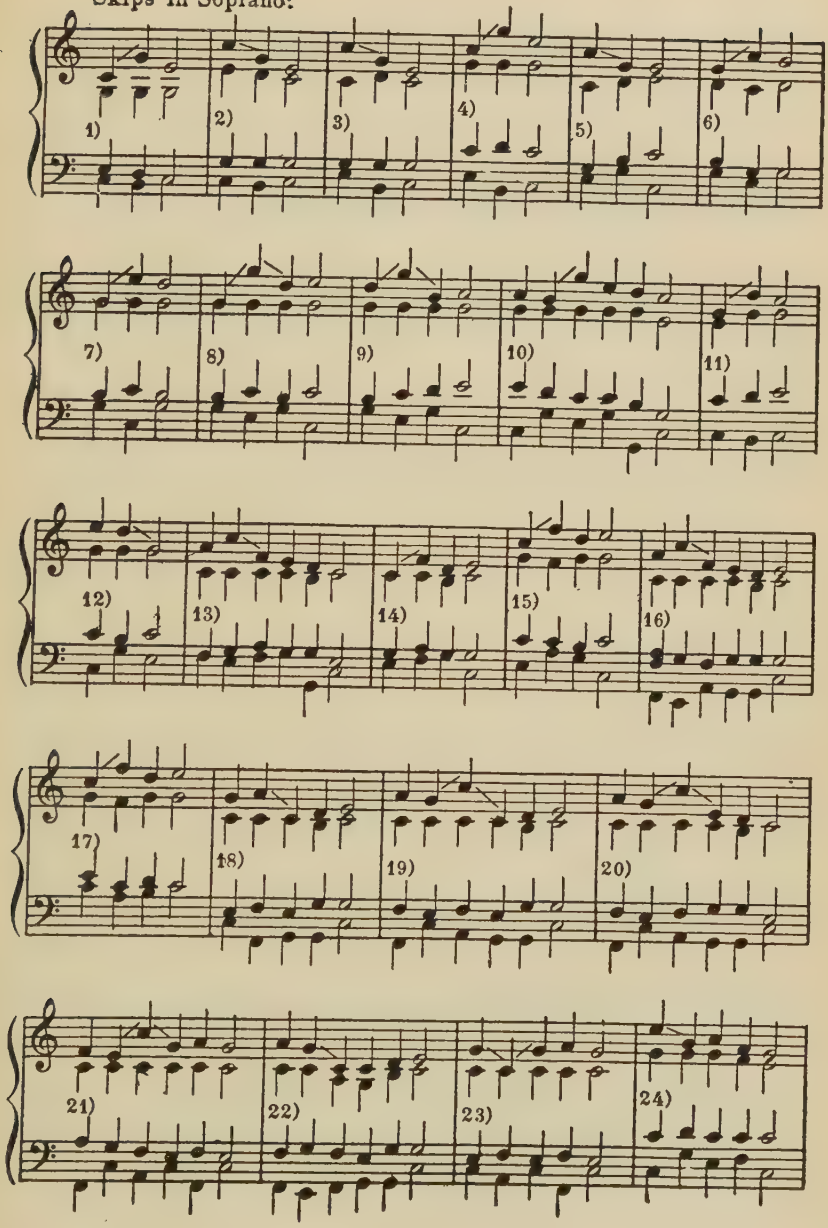
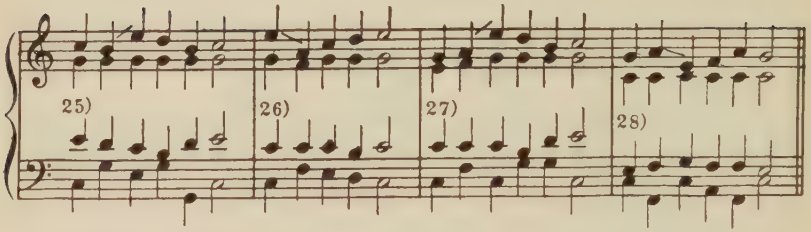


Table of I, V, IV and their Inversions with melodic skips greater than a third.

Note: The technical management of wide skips, especially in the three upper voices, *when the chord changes,* is a feature of written harmony rather than a problem for the keyboard or the ear. Hitherto, for the sake of attaining smoothness, we have excluded all such skips. They are here presented in their typical arrangement. The successions of the Table may of course be used for Keyboard Harmony or for Dictation.

Skips in Soprano:





The *skips* in No's. 13) to 17) are the same as in No's. 1) to 5), *reversed* and applied to IV-I. No's. 18) to 23) are similar reversals of 7) to 12), adapted. How many of the successions of two chords under a Soprano skip can be reversed exactly as they stand?

If the first note of a skip of a fourth or fifth is harmonized by a triad in root-position, what is the usual position of the chord under the second note? The exceptions to this are found in No's. 24) to 28). In these, from what note of the chord (root, third, or fifth) is the skip made?—If the first note of a skip of a fourth or fifth is harmonized by a triad in first inversion, what is the usual position of the chord under the second note? Is there a choice of position for the latter chord?

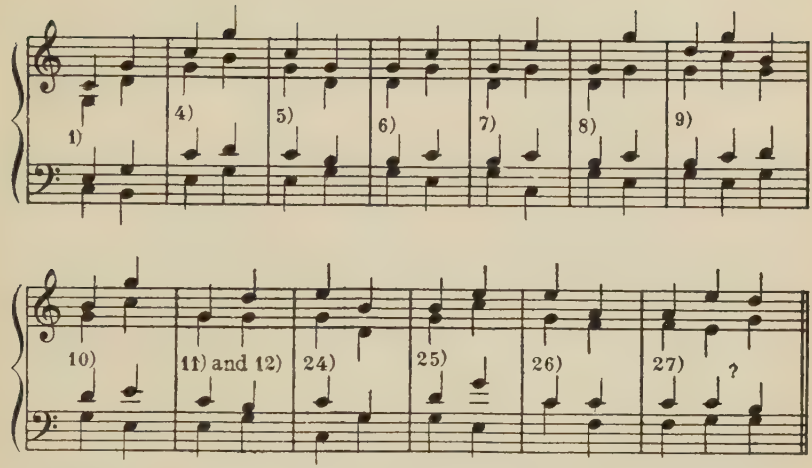
Is the common tone kept in the same voice whenever possible? Why is this impossible in 5), 6), and 11)? Would it be possible in 11) through a different doubling in the I?

Notice that two *parallel* skips of a fourth (in two voices at once) are just as much avoided as two parallel fifths. (But see Bach chorales No's. 183, 325, and 332; can you find other instances?)

When the common tone is held in one voice, are there any general tendencies of direction observable in the other voices, or do they merely 'adapt themselves' to the skip?—In 1), the motion of the three active voices is said to be *contrary;* in 2), it is called *parallel;* with the immobile voice included, the motion of all four voices would be called *oblique.* Could you now define these types of motion applied to *two voices only,* say Soprano and Bass?—Specify the type of motion in the successions of the Table in each case of a skip when all four voices are active: in each case when three only are active. Is the general tendency *parallel* or *contrary* when voices move simultaneously with a skip?

What is the general tendency of the melodic line after a skip?—Is this tendency any more precise in No's. 24) to 28) than in the previous successions?—Compare the *Soprano* skips of these successions with the Bass skips of No's. 3), 4), 15), and 16). Could you write these latter four successions *without* a Soprano skip?—How many voices would keep a common tone?

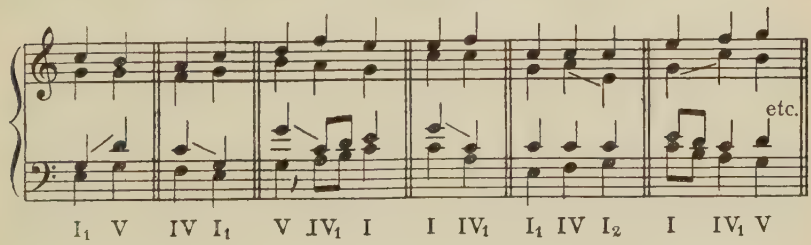
COMMON ERRORS IN WRITING THE SUCCESSIONS OF THE FOREGOING TABLE:



The 'errors' are to be compared thoughtfully with the 'models' bearing the same number. Would you be tolerant toward certain of these 'errors?' Do you prefer any of them to the 'models?'

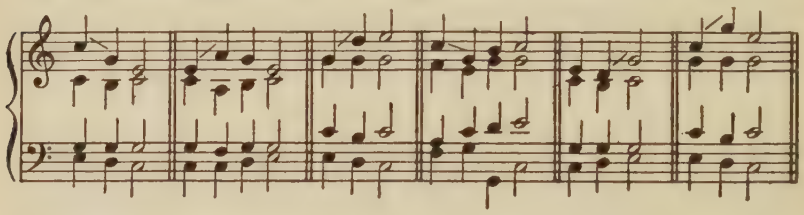
SKIPS IN INNER VOICES: The technic of skips in inner voices is essentially the same as that of skips in the Soprano, but the question of their introduction is much more a matter of individual taste. In general, when an inner voice skips during a change of harmony, the skip *stands out,* and makes the melodic line of that voice especially prominent for the time being. Study Bach chorales No. 1, double skip in 2nd phrase; No. 26, Tenor in 1st phrase, Alto in last; No. 64, Tenor, especially the final cadence; No. 95, Tenor in 7th phrase and cadence of 2nd; No. 103, double skip in 1st phrase; No. 179, Tenor throughout; No. 282, both inner voices throughout. These chorales should be sung aloud in parts to get the effect of the skips.

In general, the *cadences* of the Bach chorales show a tendency to skip an inner voice *in order to secure a preferential doubling.* On the other hand skips in the course of a phrase are often made from or to a note which doubles the *chord-fifth* or *third* regardless of a preferential doubling, e.g.—



When the melodic line is unquestionably improved by the skip, such doublings are accepted equally without question. Study the Bach chorale No. 13 with special attention to doublings produced by skips. Do you consider all these to be *contrapuntally justified?*

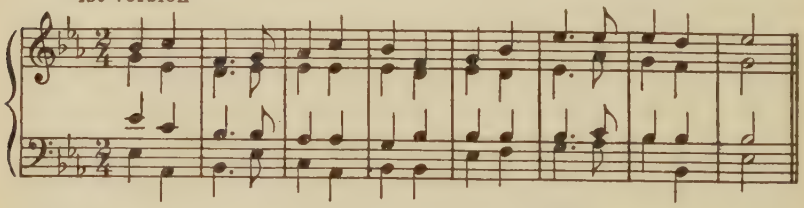
A skip involving a second inversion is possible, but less frequent:



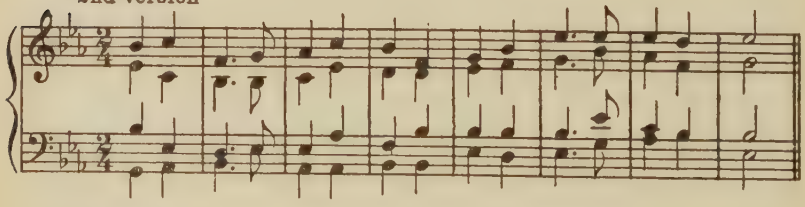
Melodies to be harmonized:

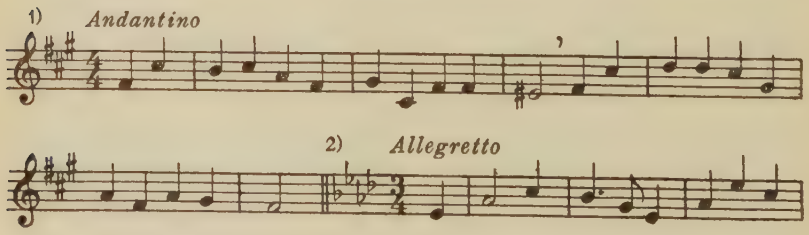
Use I, V, IV and their inversions. Each melody is to be set in two different ways with a different use of cadence-formulas at the end. Skips may be introduced in inner voices. For example:

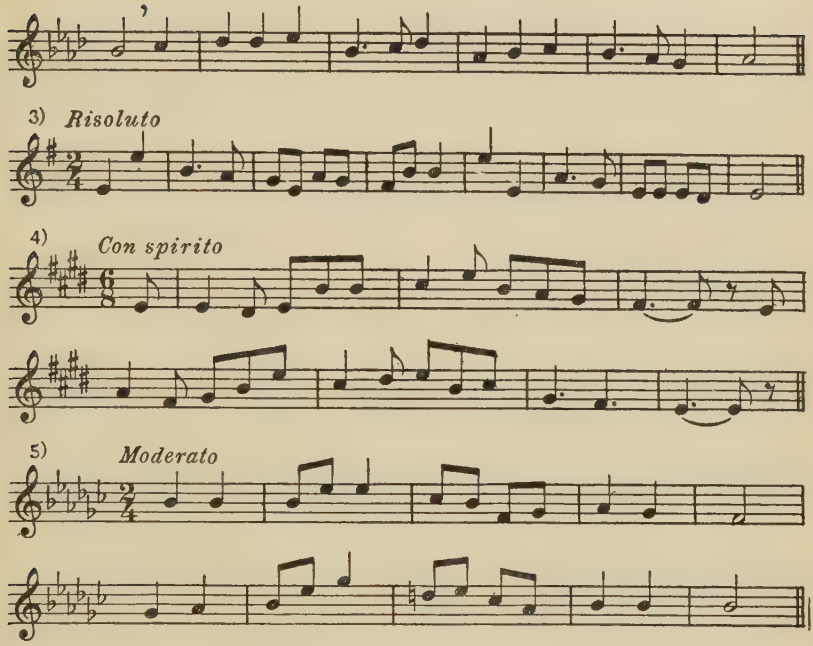
1st version



2nd version

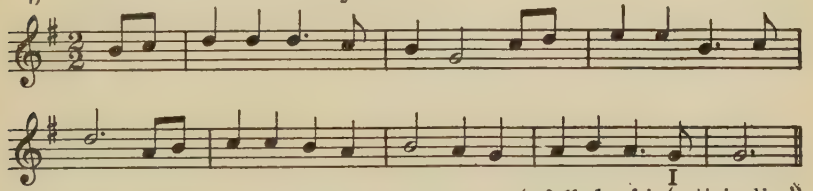




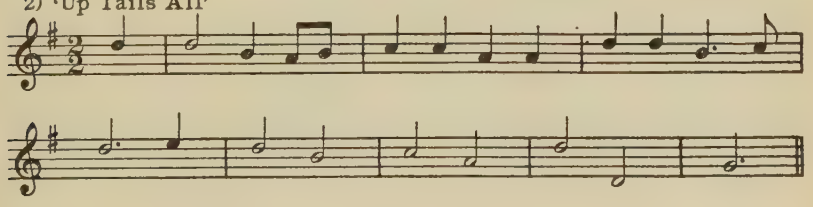


Harmonize also the following folk-tunes, using only I, V, IV, and their inversions. Two versions may be made, the first strict (a chord for every note), the second free as to style but restricted as to choice of chords, which must remain I, V, and IV:

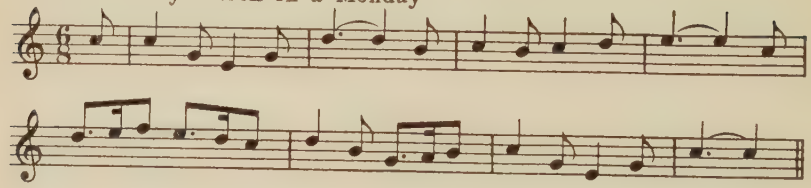
1) 'The Health' or 'The Merry Wassail'



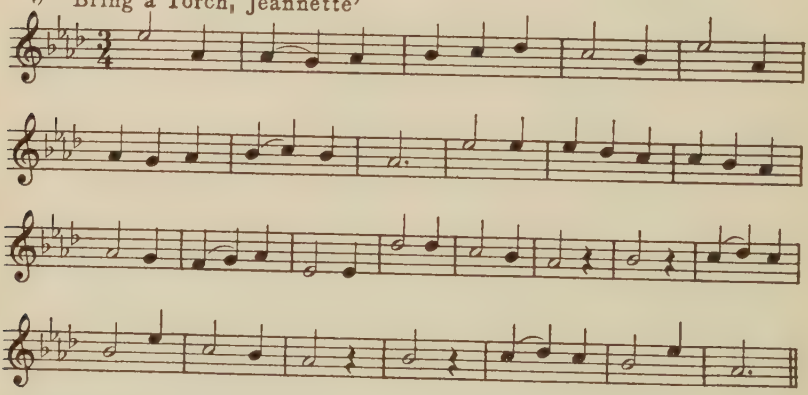
2) 'Up Tails All'



3) 'Put on Thy Smock on a Monday'

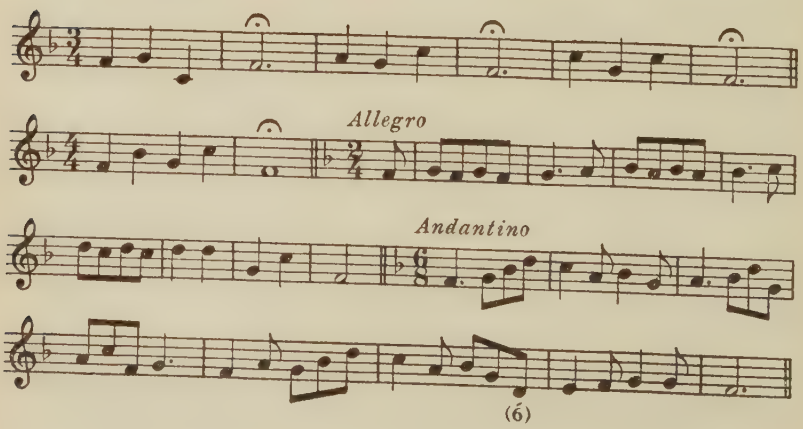


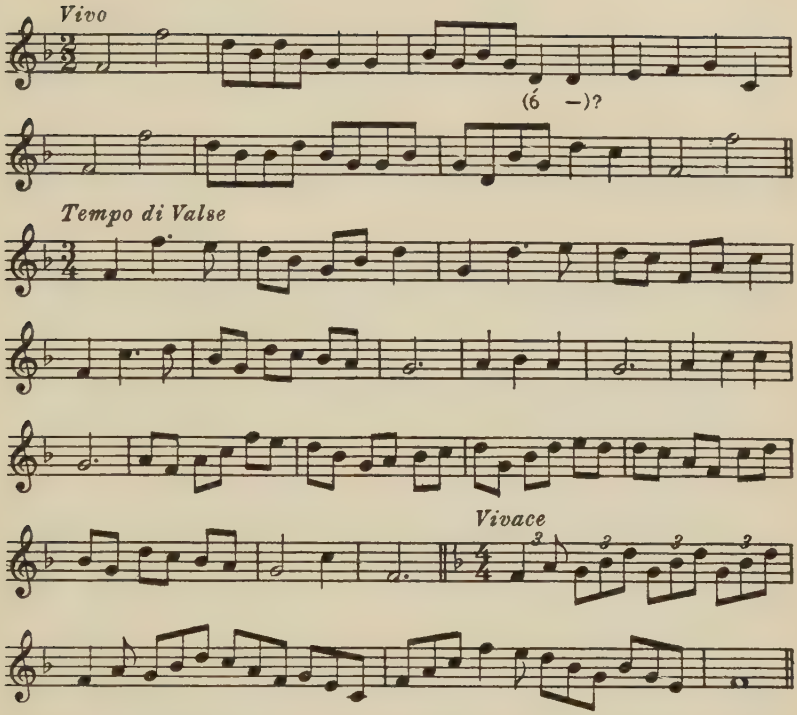
4) 'Bring a Torch, Jeannette'



THE II

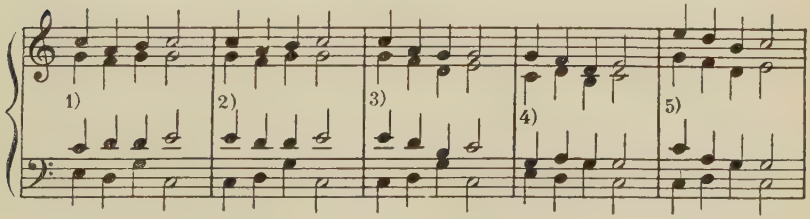
Vocalises:

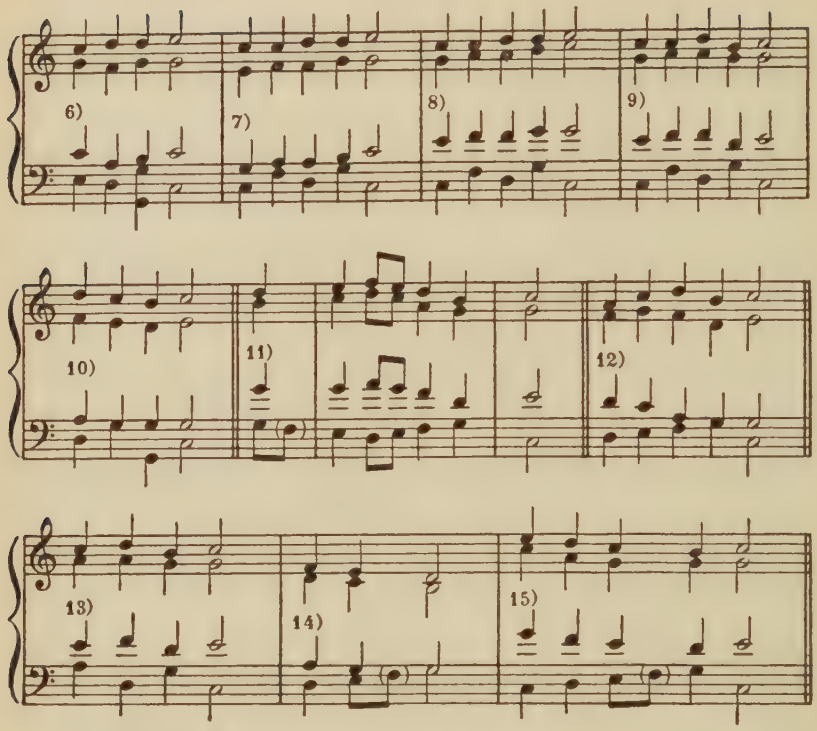




The attempt should be made to sing the preceding vocalises in *f*-minor, with either form of 6 or 7 that seems suitable. The unsatisfactory nature of certain melodic figures will show, better than anything else could, that a diminished triad must be handled with gloves.

Table of the II in Major:





VI II V I

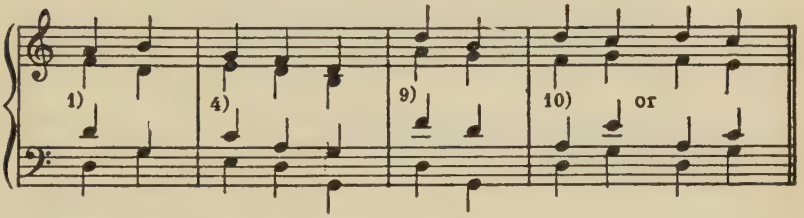
Have you any feeling of preference between the successions of II-V in which the common-tone is kept in the same voice and those in which it is not? Cf. No's. 1) and 2) with 3), 4), and 5).—Purists object to the two parallel major thirds in 1), 2), and 8). Do you perceive why?—Do you object?—If you do, how may they always be avoided?—See Bach chorales, No. 143, fourth phrase; No. 188, 1st phrase; under what special condition do the parallel thirds appear?

By what chords is the II usually followed?—preceded?—If the II and IV are used in succession, which invariably precedes in the Table?—Is this the case in music in general?—Why?—Consider carefully.—Compare 6) and 7) with regard to the harmonic function of II and of IV-II. Could IV be substituted for II in every succession where 2 is not the Soprano note?—What do you conclude?—11) and 12) show I as passing-chord between two positions of the II.—13) shows the frequent harmonic progression VI-II-V-I.—14) and 15) are types of progression occasionally used in the Bach chorales.

In which of the successions may the II be used in minor?—In which the

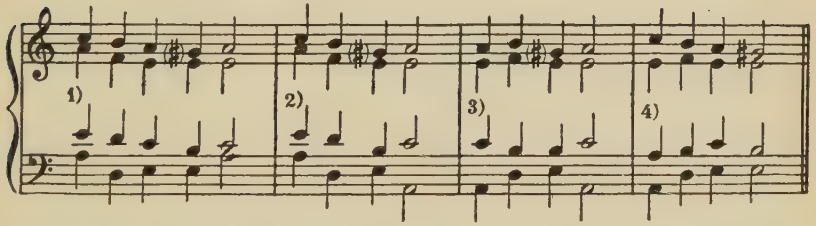
ordinary II?—In which does *neither* sound well?—In which does the IV have to precede the II?—The IV the II?—Can you have IV followed by the ordinary II?—Which successions may be played entirely in the Aeolian mode?

COMMON ERRORS IN THE USE OF THE II:

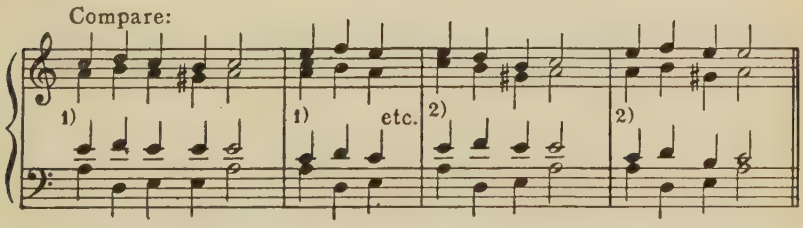


Discuss these errors with respect to both modes.

The II_1 in minor:

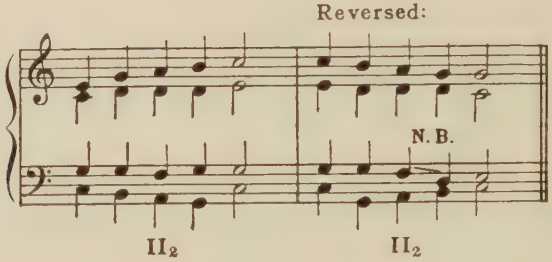


Transpose to *A* by the use of three sharps in the signature. Are the successions equally valid?—Are other resolutions of the II_1 possible, using triads only?—Are they common?—Can another note of the chord be used as Soprano?



Are any of these invalid in major?—Why?—Could the parts be arranged so as to avoid the objection?—Note that we avoid skips greater than a third in a melodic part. These will be taken up in the Review section.

The II_2. The use of the II_2 is limited at present to instances of this type:

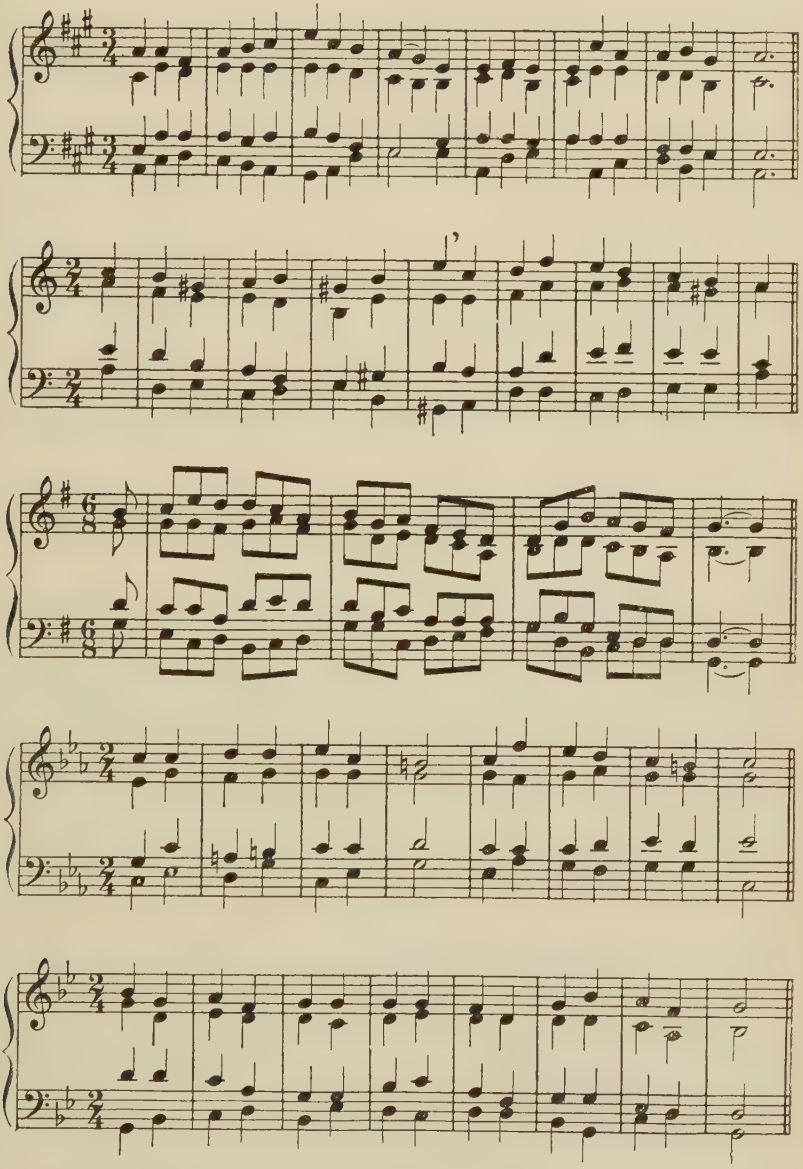


Keyboard Harmony: The tables of II and its inversions should be worked out fully in both modes and with the greatest possible variety in the employment of 6 and 7 in minor.

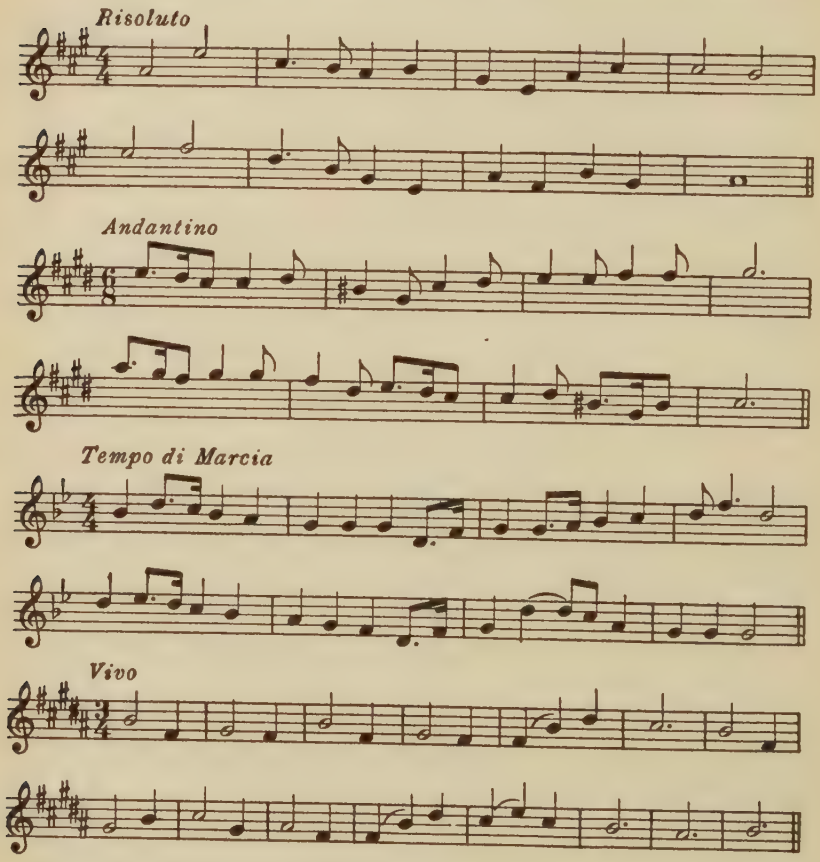
For Bach's use of the II, see the chorales No. 17, last phrase; No. 18, 2nd phrase; No. 38, last phrase; No. 51, 4th phrase; No. 53, 3rd and last phrases; No. 56, 2nd phrase: contains II → III,—how used? also 3rd phrase; No. 91, last phrase; No. 110, 1st phrase. For the II in minor, examine No. 300, last phrase; No. 82, 1st and last phrases; No. 25, 1st phrase; No. 294, 1st phrase. Can you find any instance of Bach's use of the II in minor other than as 'passing' harmony?

Dictation: In spite of the fact that the IV and II are of different intervallic structure in major, students often confuse them, and still more frequently confuse the IV and II_1, which have the same bass-note. For the correction of this error of perception, the vocalises for IV and for II should be sung in succession; the instructor may then use the Tables for IV and II, *substituting the IV for the II* wherever possible in addition to dictating the successions as written. There is no such difficulty with the II in minor. If additional training seems advisable, the study in Dictation under II^7 may be utilized. (See p. 141.)

Exercises for Dictation:



Melodies to be harmonized: (The II and its Inversions)



THE VII$_1$

Having completed our study of the triads on the tonic and on the three dominants of the key,—dominant proper, subdominant, and second-dominant,—we now turn to the next most frequently used chord when triads only and their inversions are in

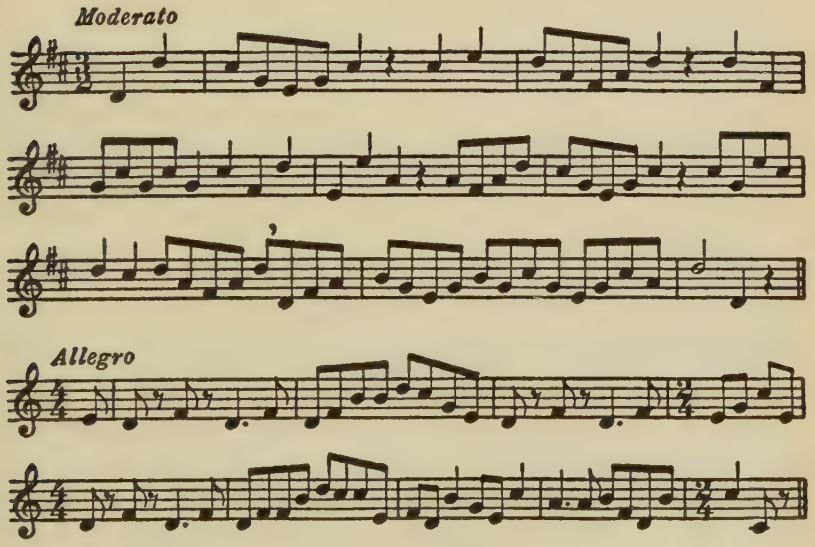
question, the first inversion of the diminished triad on 7, in both modes (vii$_1$ in minor).

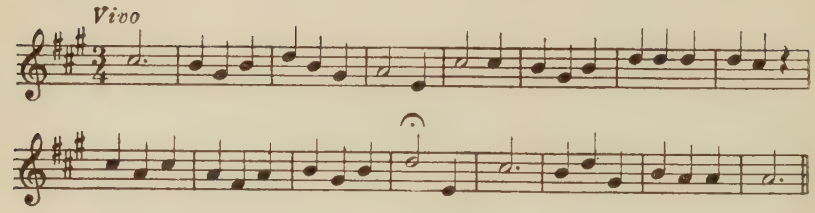
Examine carefully the Bach chorales No. 1, 1st, 2nd, and 7th phrases; No. 2, 6th and 7th phrases; No. 3, 1st, 2nd, and 3rd phrases, etc. In the first three chorales, the VII$_1$, in one mode or the other, is used eight times, and a sharp-eyed person might find more instances, counting those resulting from passing-tones.

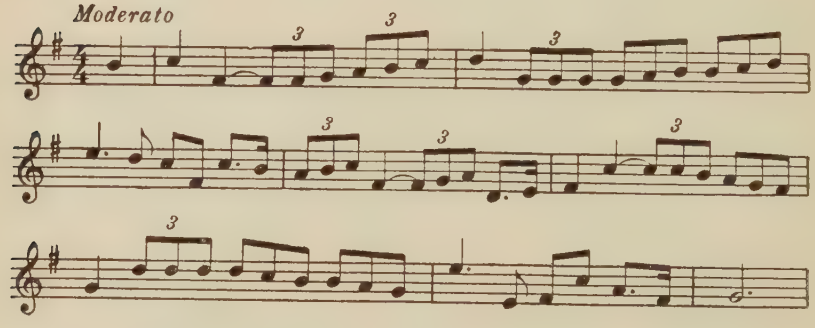
In both modes, what chord follows the VII$_1$ in every case? What should you say, then, of its function? Could it be considered as a Dominant chord?

[Its proper symbol would then be V. Some theorists represent it as $_{o}V^{7}$, i.e., 'Five-seven-incomplete.' In this manual it will be represented by *small Roman numerals*, the capitals being reserved for the cases when the chord on 7 acts 'as a true Seven,' i.e., as a *remote* chord in the key instead of one near the centre of tonality.]

Vocalises: (To be sung also in the tonic minor)







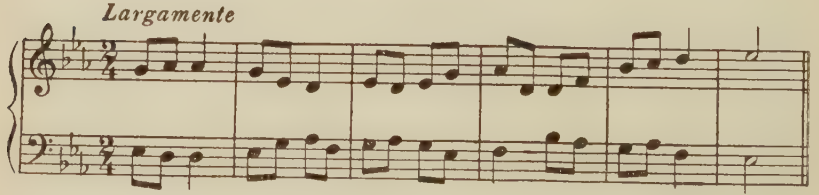
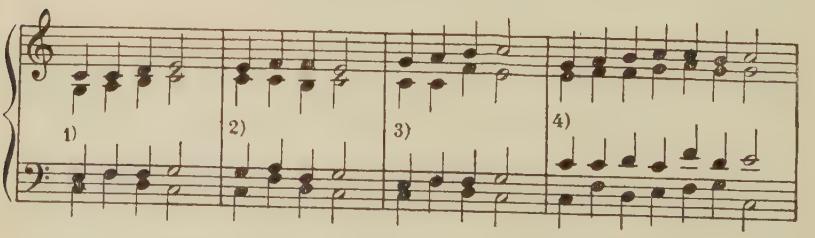
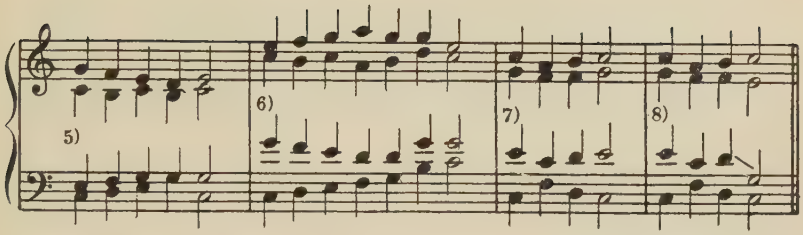


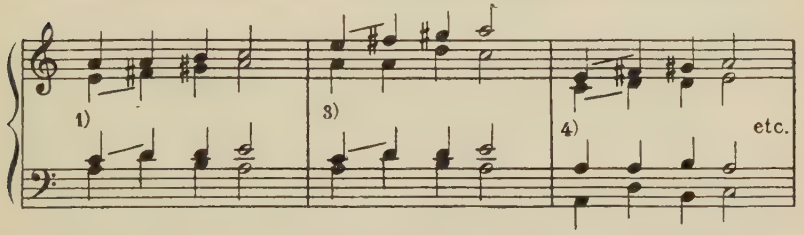
Table of the VII$_1$ (víí$_1$ in minor):



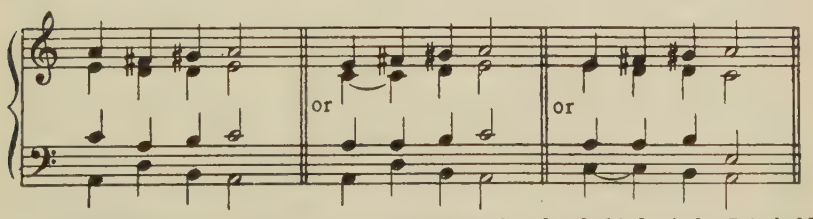


What choice of doubling is there in the VII$_1$?—The doubling of which note is avoided?—Why?—What chord usually precedes?—What other chords may precede?—(Consult Bach.)—Notice the melodic movement of 4 of the scale in every succession of VII$_1$-I except 8). How is it avoided in 8)?—In which of these successions, when changed to minor, is a modification of IV to I$\acute{V}$ necessary?—Change 6) so as to make it possible in minor.

Purists object to the succession of two major thirds in the following:



Note that the chords involved are I and I$\acute{V}$, preliminary to the v$\acute{\text{i}}$i$_1$. This succession is avoided in the Bach chorales, any use whatever of the I$\acute{V}$ in root-position being almost undiscoverable. (See however No. 287, last phrase; also No. 358, last phrase, where the I$\acute{V}$ occurs before a v$\acute{\text{i}}$i$_2$ at the beginning of a modulation to *g*, Bach being more interested in what his voices are doing than in his harmony.) According to the purists, the succession I-IV-v$\acute{\text{i}}$i$_1$-I has to be written in one of these ways:



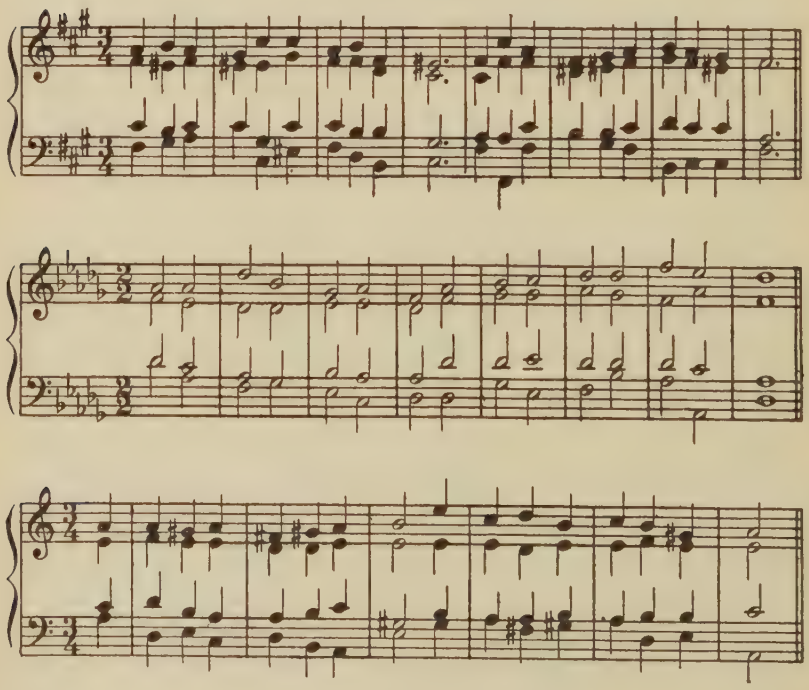
In the second and third of these instances, the chord-third of the I is held over into the I$\acute{V}$, of which it is the chord-seventh, making the chord a I$\acute{V}^7$. (See Bach chorales, No. 60, 2nd phrase; No. 71, 2nd phrase; No. 82, 2nd phrase,

N.B. the relation with the first chord of the phrase; No. 96, 2nd phrase; No. 109, 4th phrase; No. 175, 5th phrase—note the parallel thirds, but the *key changes* between them.) Those who object to the two parallel major thirds between I and IV in minor may avoid them in the manner indicated, when harmonizing 5-6-7-8 of the minor mode. The IV^7 will not be introduced in the dictation exercises till Part III of this manual.

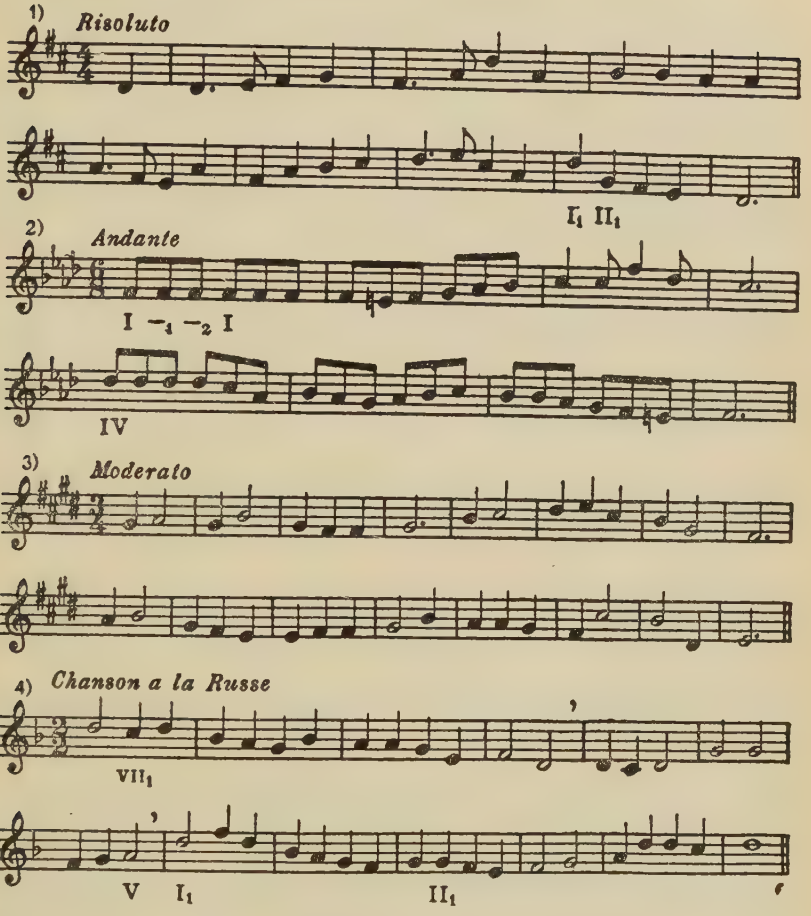
Which of the successions sound badly in the Aeolian minor?—Why?—What restriction would you place on the use of the VII_1 (grave) in that form of the minor mode?

Keyboard Harmony: Transpose the successions of the table to all keys, both modes, using your preference as to the modification of 6 in minor.

Exercises for Dictation (VII_1):

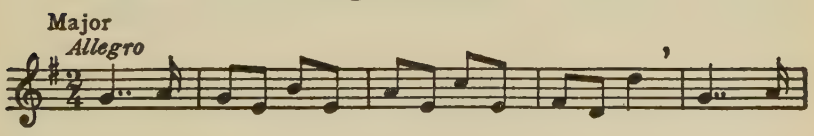


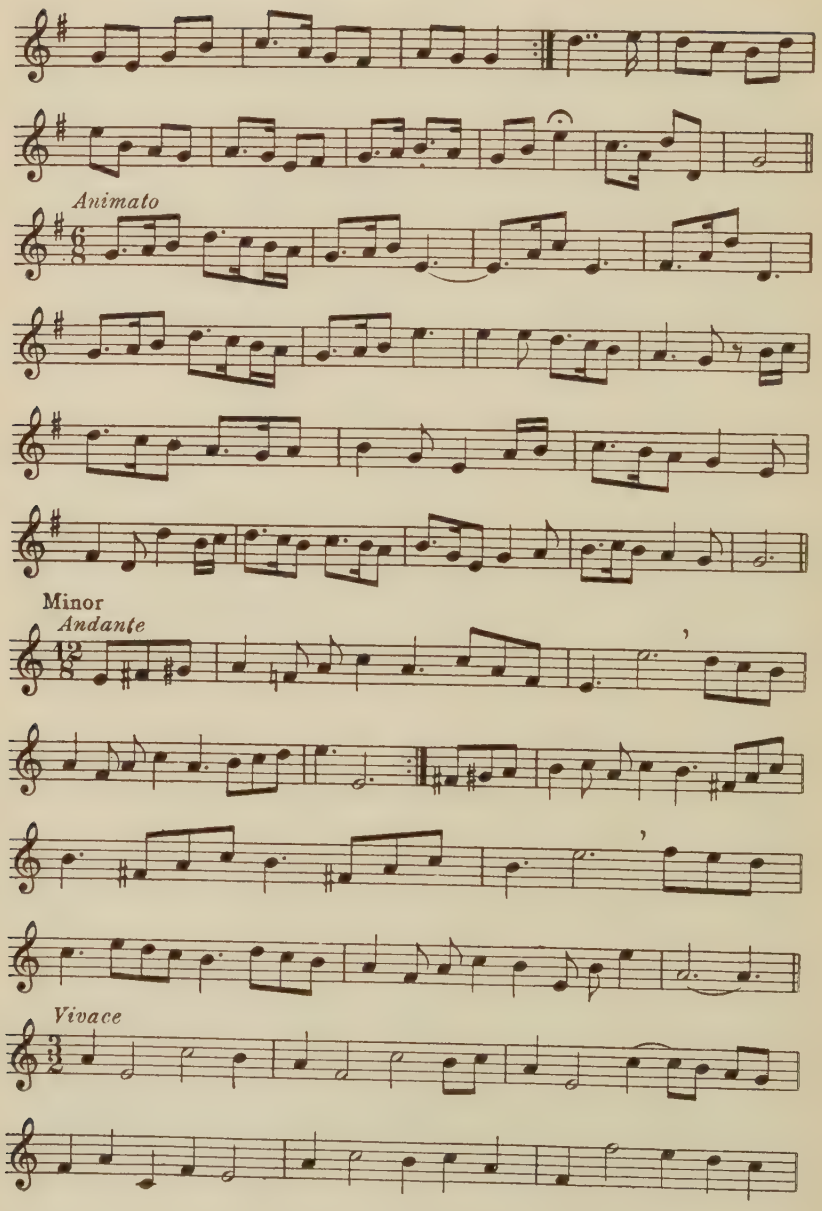
Melodies to be harmonized: (Using VII_1)



THE VI

Vocalises: To be sung as written.




Animato
Minor
Andante
Vivace

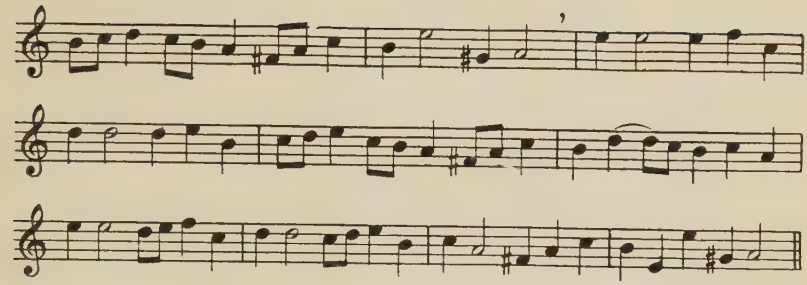
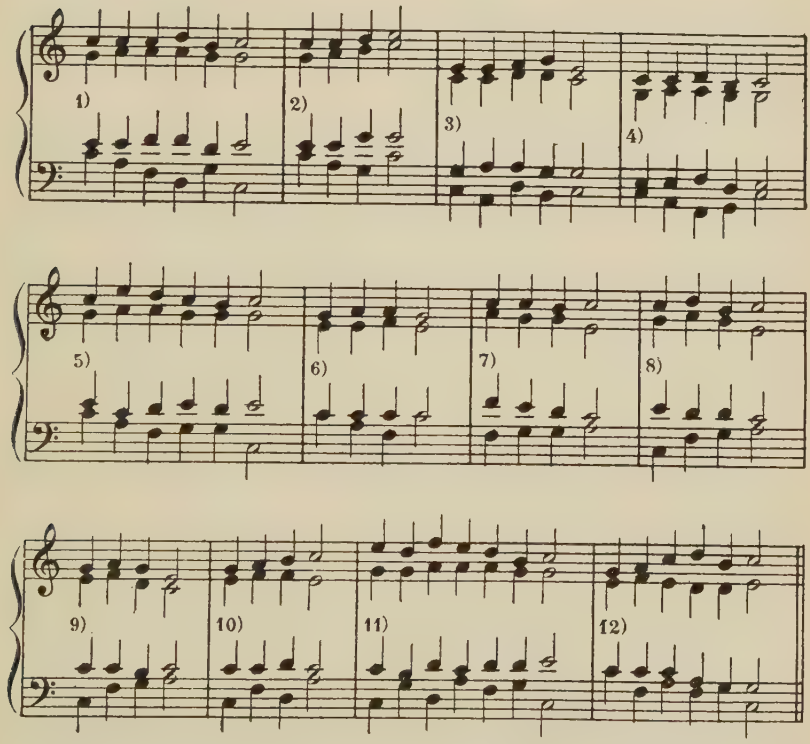


Table of the VI:



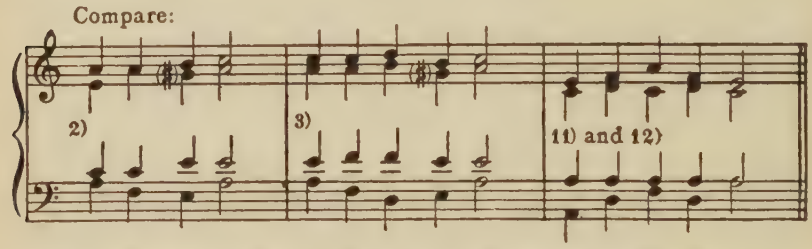
Examine the Bach chorales, No. 9, 1st phrase; No. 14, 1st phrase; No. 15, 6th phrase; No. 18, 2nd and last phrases; No. 26, 2nd phrase; No. 32, 2nd phrase,—unusual use of VI_1; No. 35, 1st phrase, VI-I_1; No. 85, 7th phrase,—VI

as terminal chord of cadence; No. 101, 1st phrase,—minor cadence; No. 119, 3rd and 8th phrases; No. 110, 3rd and 5th phrases; No. 122, 6th phrase; No. 179, phrases 3, 7, 8, 11, and 12. Note the Bass skip at the end of phrase 11. Inversions of VI are infrequent, and the VI in minor is exceedingly rare, the chord-seventh being usually present when a chord is built on 6.

With what chord does the VI compare in freedom of use?—For what chord may it be substituted?—Is their function the same with respect to the key?—Reverse the order of chords in 1): why is the result musically unsatisfactory?—Why is the succession VI-I avoided?—What chords may precede?—What chords follow?—

Some theorists forbid the use of VI with its root in Soprano. Does Bach observe this prohibition?—Do you perceive any reason for it?—No's. 7), 8), 9), and 10) are types of cadence-formulas; this kind of cadence is called *'Deceptive.'* Why?—What note is usually doubled in the VI of a deceptive cadence?—Why?—If a II or a IV precedes the VI, what usually follows?—

Experiment with the successions of the Table in the minor mode, using the variables 6 and 7 as they seem best to fit in.



What are the changes in 2) and 3) and why are they necessary?—Can 10) be adapted to the minor mode?—Can you explain the problem presented in 11) and 12), both modes, from the standpoint of chord-function?—

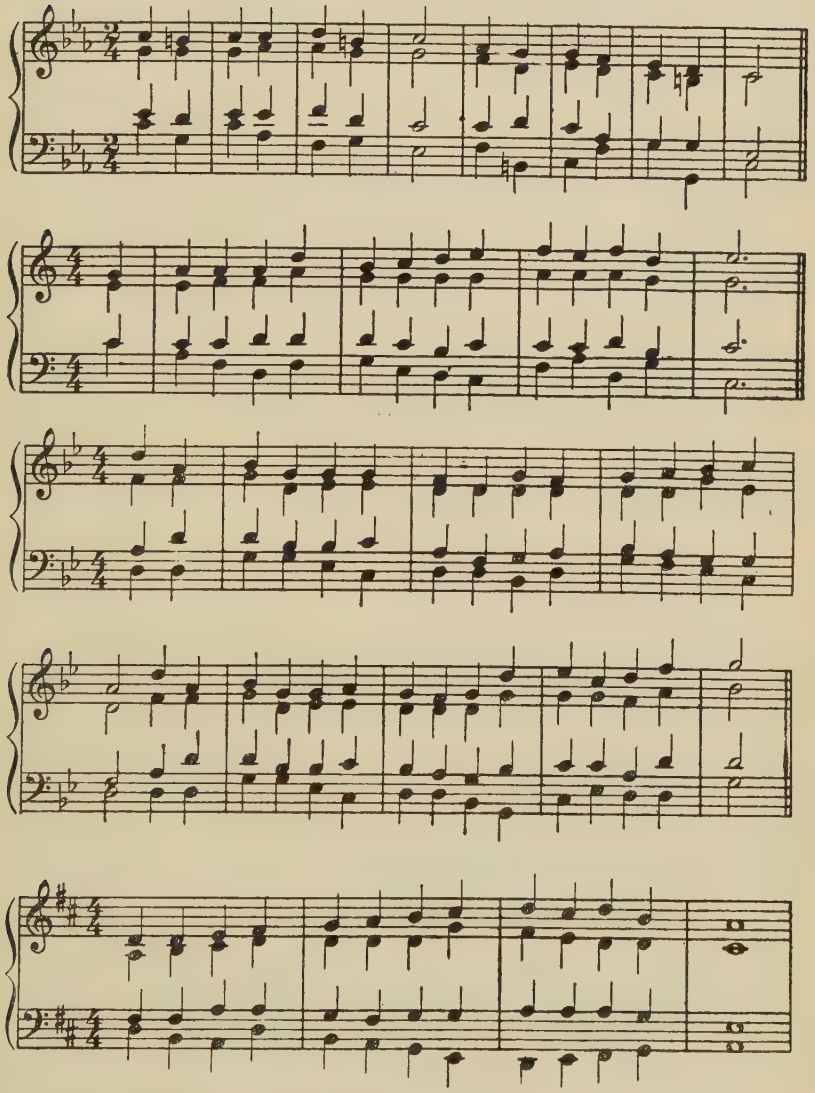
V-VI is a succession based on adjacent tones. Compare this carefully with IV-V and I-II. Note the errors listed under IV-V and avoid similar mistakes in writing V-VI.

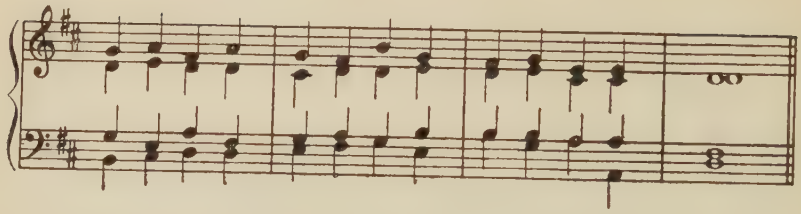
I-VI and VI-IV are successions on roots a third apart. Cf. with IV-II. There are two common-tones, and the part-writing will be smoothest with both these kept in the same voices unless the Soprano dictates otherwise.—Cf. 1) with 12). The order of VI-IV in these successions may be reversed. Is that true of any other two chords?

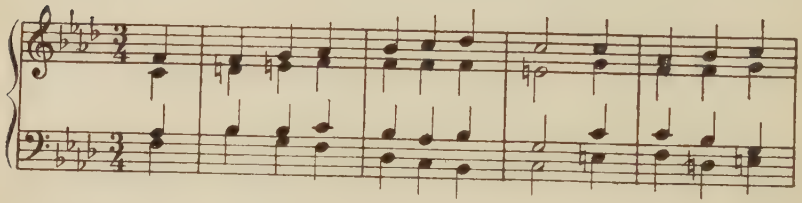
Keyboard Harmony: In addition to the transposition of the successions of the Table, work out the following exercise in both modes with all possible Sopranos and all inversions that sound musical:

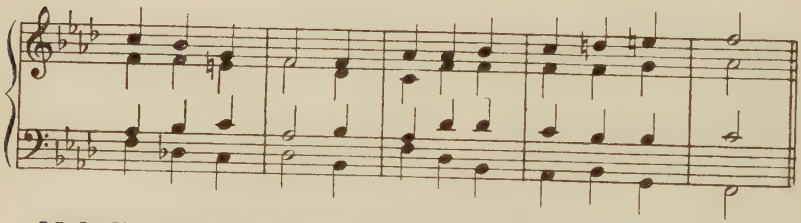
$\frac{4}{4}$ I | VI IV II V | I – – ‖

Dictation:



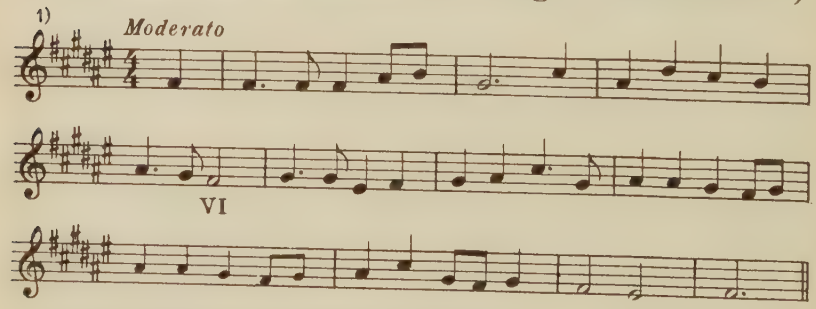






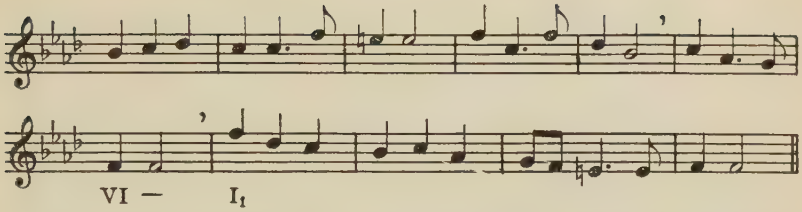
Melodies to be harmonized: (Using VI and Inversions)

1)

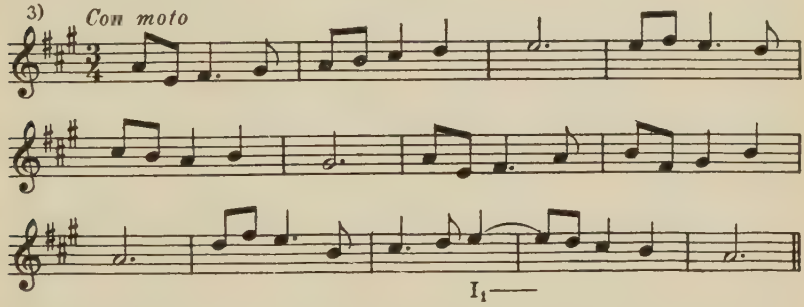


The 7th and 8th measures should be differently set.

2)

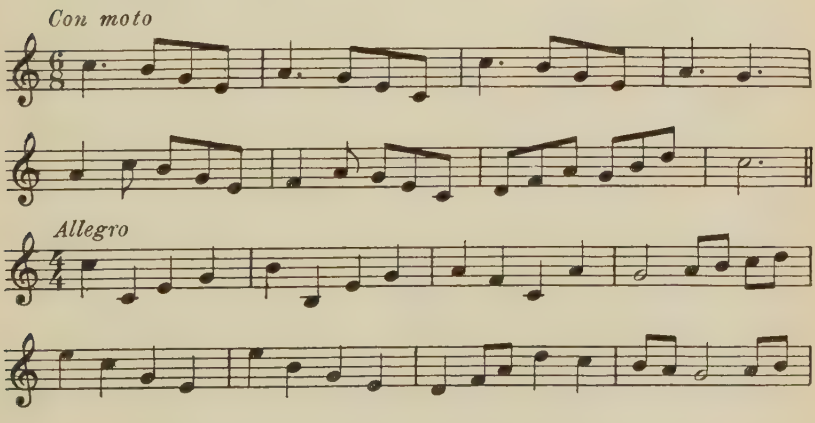


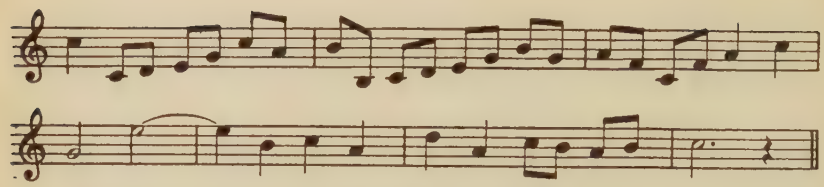
Note The terminal chord of each cadence of the Sarabande is traditionally repeated on the second beat of the measure; the inner voices may change position in the chord, or the Bass may leap an octave.



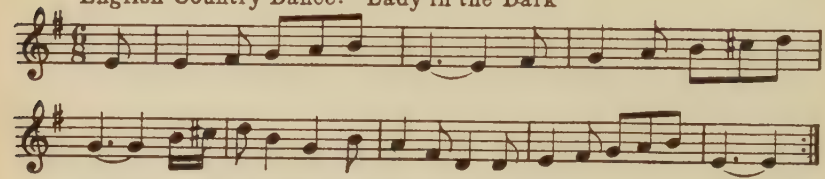
THE III

Vocalises: To be sung as written.





English Country Dance: 'Lady in the Dark'



English Country Dance: 'Goddesses'

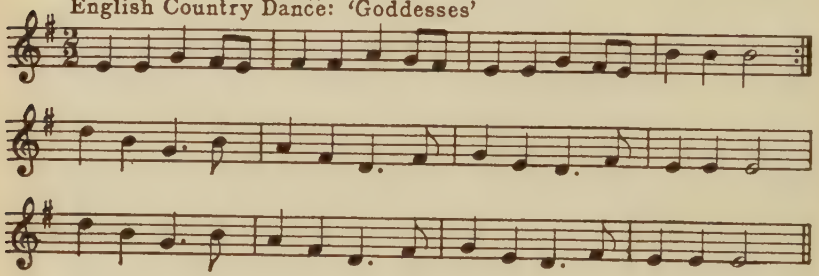
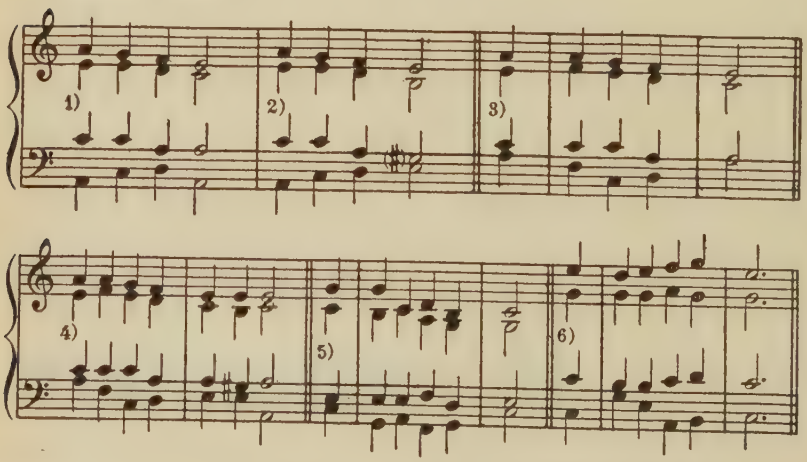
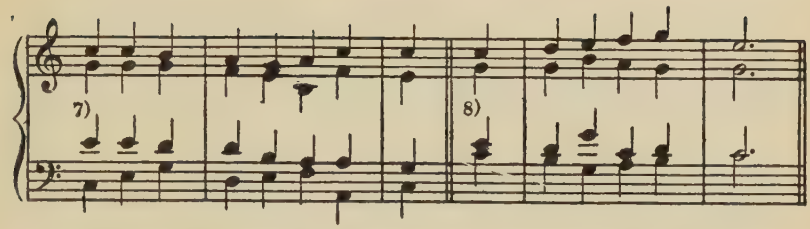


Table of the III:





No's. 1)-4) are typical of the conventional employment of the III. Change the signature to 3 sharps. Are these successions equally valid in major? III-IV-V̇, preceded by either I or VI in minor is sometimes called a *Phrygian* succession. Why?—It is occasionally used as a cadence formula. What kind of a cadence does it make?—Examine Bach's treatment of the Phrygian cadence in chorale No. 81, last phrase.

Try other Sopranos. Are they possible? Satisfactory?—5)-8) are examples of a freer use of the III. For similar cases to 5), see chorale No. 38, 1st phrase—*E♭*: $\frac{4}{4}$ I IV_1 V_1 III_1 | VI V I— ‖; also Brahms, *Violin Sonata* in *d*, the opening of the second movement. For a striking example of the Phrygian cadence, see Brahms, *Rhapsodie* in *E♭*, Op. 119, the close.

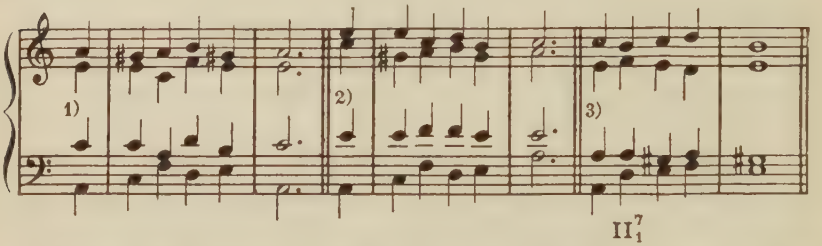
Note that in 3) to 8), above, the metre is suggested. What makes the element of metre important in the analysis of the remoter chords of a key? Upon what beats should they preferably stand? Has the 'sense of the phrase' anything to do with the matter?—Examine the following Bach chorales with the idea of determining whether there is a chord in the specified phrase which can be analyzed as a III: No. 2, 5th and 7th phrases.—Passing III_2 in final phrase?—No. 5, 5th phrase,—(V_1-III_1-IV_1?)—; No. 7, 1st phrase; No. 11, the 11th phrase (III_1?); No. 14, 1st and 2nd phrases; No. 28, last phrase—could this contain *b*: $\underset{\frown}{III_1}$ $\underset{\frown}{V\dot{I}^7}$ | $\underset{\frown}{\dot{V}^7}$ I $\dot{V}^{-7}$ $\hat{\dot{I}}$ ‖ from one point of view?—; No. 45, 4th phrase; No. 47, 2nd phrase; No. 55, 3rd phrase; No. 56, 2nd and 3rd phrases—similar cases—; No. 86, last phrase; No. 357, 4th and last phrases. What is your conclusion regarding the relation of III to the tone-centre?

Keyboard Harmony: In addition to the successions of the Table, play the following in all keys and both modes:

$\frac{4}{4}$	8	8	7	6	6	5	5	6	7	8	–	–
	I	VI	III	IV	II	V	I_1	IV	VII_1	I	–	–

The IÍI in minor: The sound of this chord is studied under Chromatics as the fourth species triad. Its use in diatonic har-

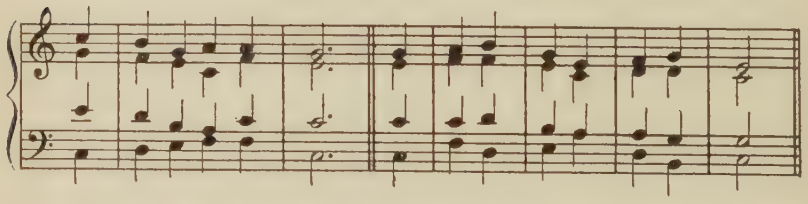
mony is infrequent; as a rule the 7th scale-degree is but casually combined with the 3rd and 5th as an inharmonic tone. So strong is the tendency within the chord that there is always question of a transient modulation to the tonality a fourth above or a fifth below, which would make its function V. A few possibilities are tabulated below:



See also Bach chorales, No. 252, 12th phrase; No. 244, 7th phrase; No. 149, 1st phrase; No. 287, 1st phrase; No. 324, 8th phrase. How is the sense of transient modulation to be avoided?

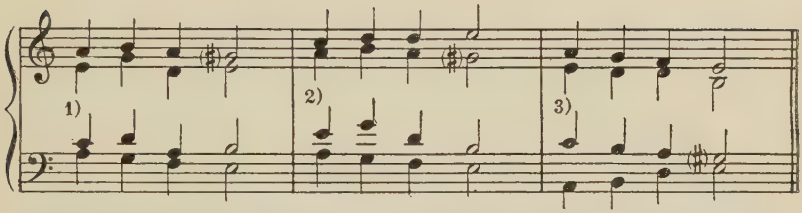
THE VII

The VII_1 (True 'Seven') in Major:



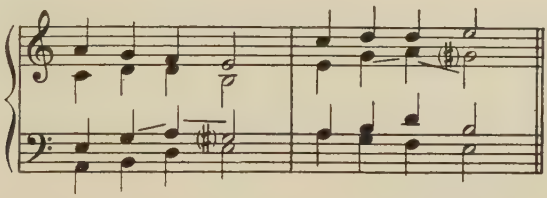
Why is this chord employed here in first inversion only?—Can there be any other resolution?—Can any chord precede save the I or IV?—What of such cases as the Bach chorale, No. 74, 3rd phrase?—Cf. with the third phrases of No's. 80, 89, 98, 345, 270, 286, and 367. In how many of these is the first inversion of the triad on 7 'Dominant' and in how many true 'Seven.'—Can you find any examples of VII in major which differ from the type illustrated?—Is either of the successions possible in minor?—In what form of the mode?—Is there danger of a feeling of transient modulation?—Does anything prevent this?—

The VII in Minor:



Like the successions involving III, these are also called 'Phrygian.' Why?

The common error in writing this succession is to place $\acute{7}$ and $\grave{7}$ in the same *melodic* phrase:

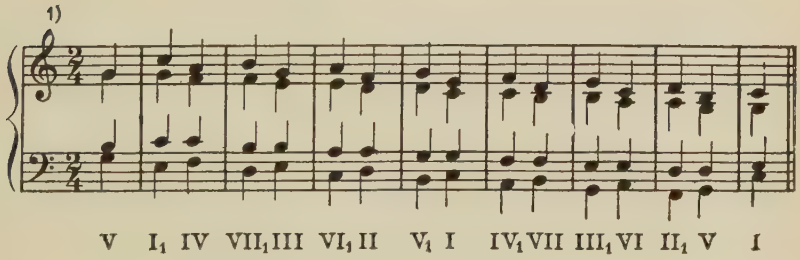


Sing the parts involved. Why are they to be considered 'bad grammar'?—If both 7's were 'grave,' would there be anything to object to?

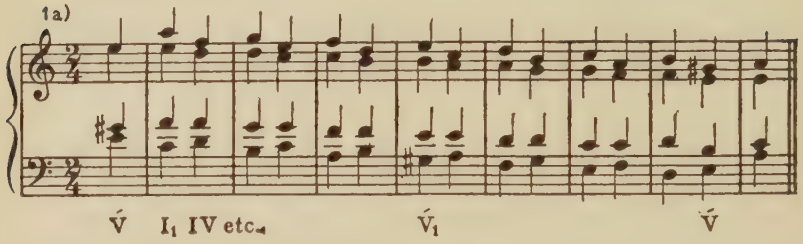
Note the skips necessary in 1) and 2) to avoid the error, and the doubling in 3).

Keyboard Harmony: *ALL TRIADS OF THE KEY IN SEQUENCES.*

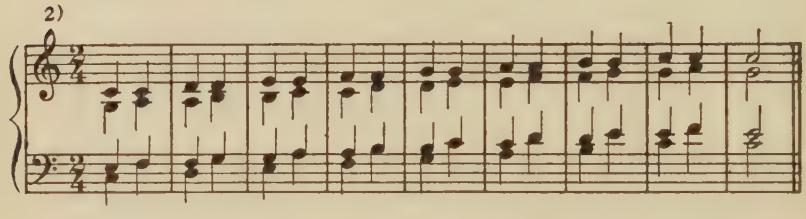
Major mode sequence:



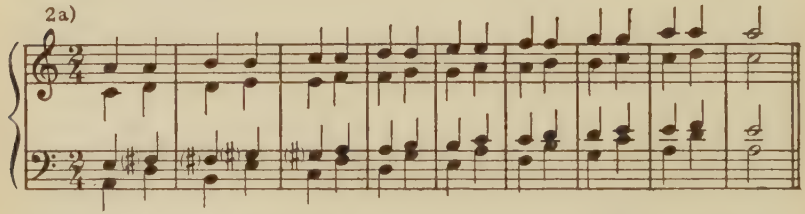
Conventional modification of the above for minor:



Major mode sequence: (close position)



Conventional modification of the above for minor: (open position)



The *Sequence* is of the greatest importance in musical design. Study carefully the examples given and then define the term 'Sequence.' These are harmonic sequences. What would a melodic sequence be? Do these examples contain melodic sequences? At least how many elements are necessary to form a member of a sequence? In 1) do the first and last chords belong to the sequence? In 2)?

In which form of the minor mode are all sequences possible? Can you formulate the general method of procedure necessary when it is desired to use $\acute{7}$ and $\acute{6}$ in minor? Why are these variables impossible in 2a) after the third measure?

Are the diminished triads in fundamental position found in these sequences more satisfactory to the ear than usual? Do you consider that the sequential relationship justifies them?

The four sequences given above as models should be played at the keyboard in all tonalities. In addition, work out the following successions in sequence, paying particular attention to the smoothness with which the chords are linked together. All sequences are to be realized in both modes with the maximum use of $\acute{6}$ and $\acute{7}$ in minor.—

$\frac{2}{4}$ — 7 | 8 6 | 7 — V | I IV | VII — etc. *Descending.*

$\frac{2}{4}$ — 7 | 8 8 | $\bar{2}$ — V | I VI | II — etc. *Ascending.*

$\frac{2}{4}$ — 5 | 5 4 | 4 — V_1 | I IV_1 | VII — etc. *Descending.*

$\frac{2}{4}$ — 3 5 | 4 6 | 5 — I I_1 | II II_1 | III — etc. *Ascending.*

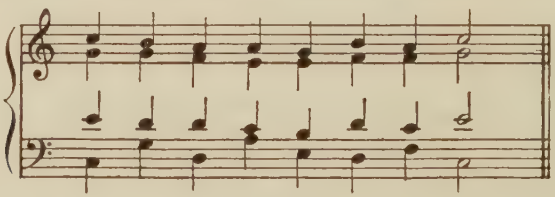
$\frac{2}{4}$ — 8 6 | 7 5 | 6 — I II | VII I | VI — etc. *Descending.*

2/4	3	2	4	3	5	4	etc. *Ascending.*
	I	V	II	VI	III	VII	
2/4	1	2	7	8	6	7	etc. *Descending.*
	I_1	II	VII_1	I	VI_1	VII	

Invent at least three sequences similar to these.

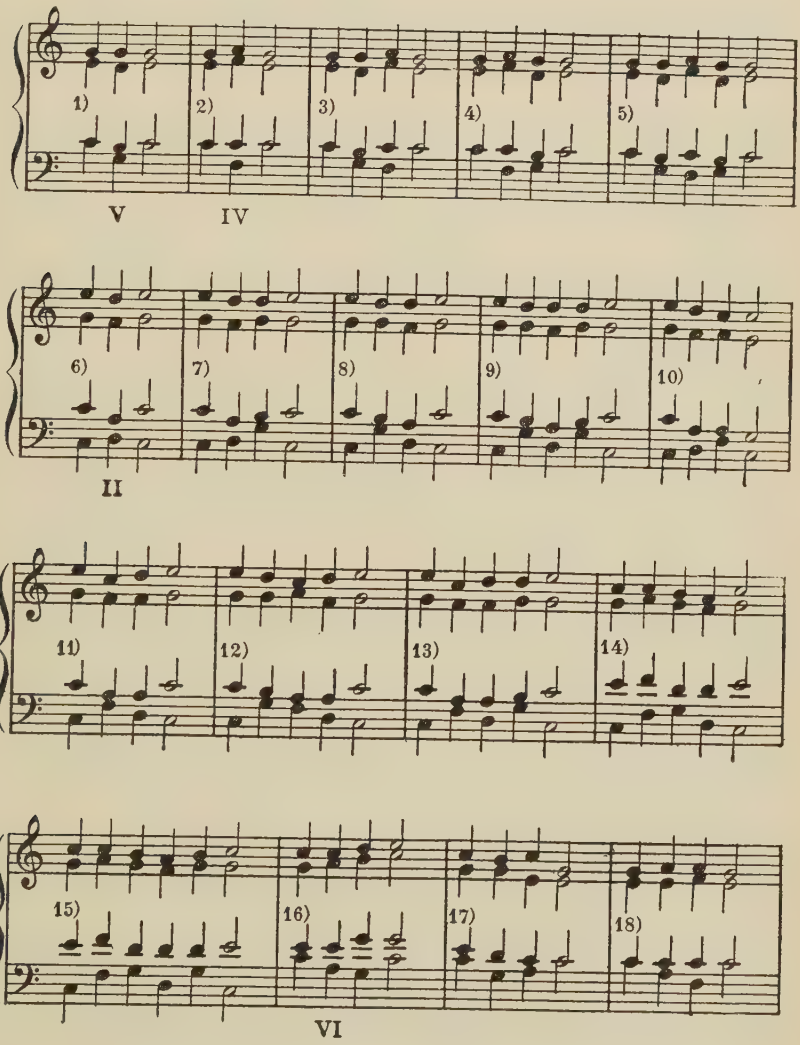
HARMONIC ACTIVITY

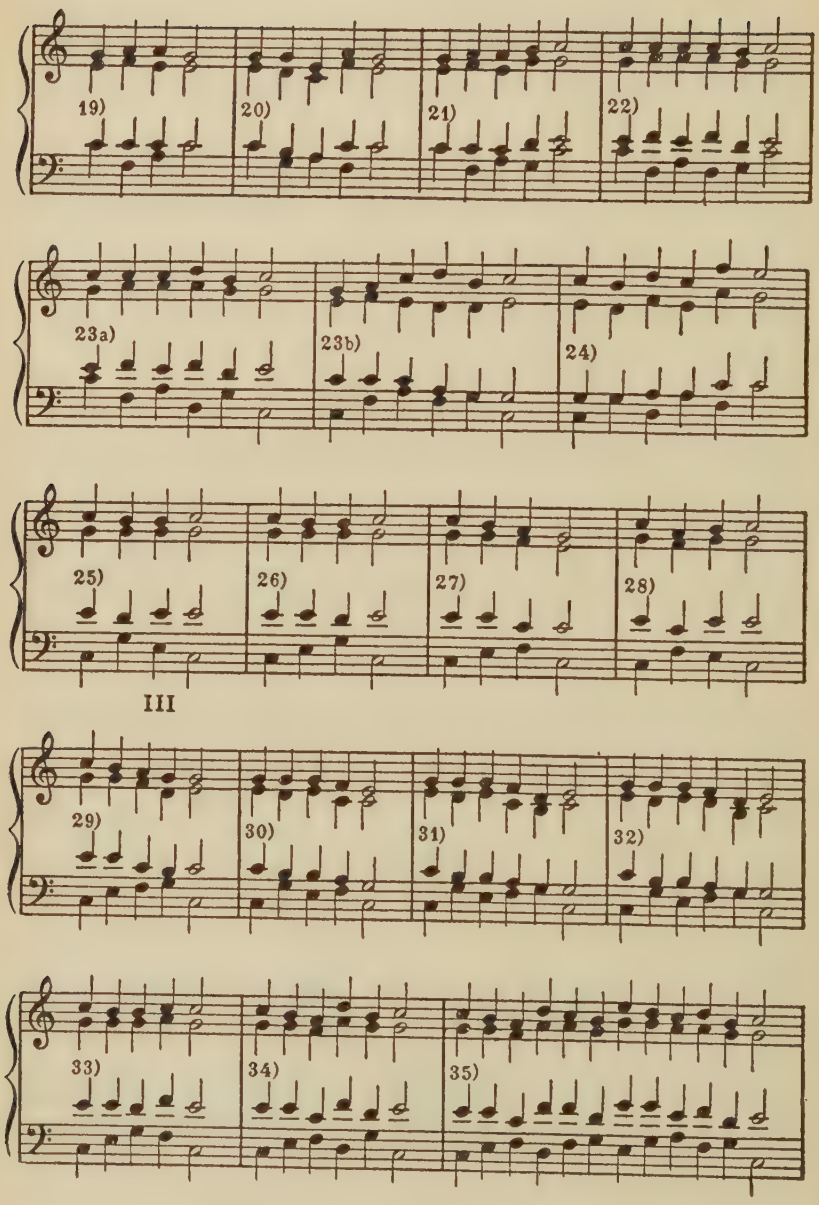
It should be clear from the manipulation of various sequences that the strong harmonic tendencies within a given tonality operate in such a way that progression, 'going on,' is most natural when the bass moves up a fourth or down a fifth (e.g., I-IV-VII-III-VI-II-V-I *ad infinitum*). If the series is reversed, the meaning of 'harmonic progression' becomes quite clear:

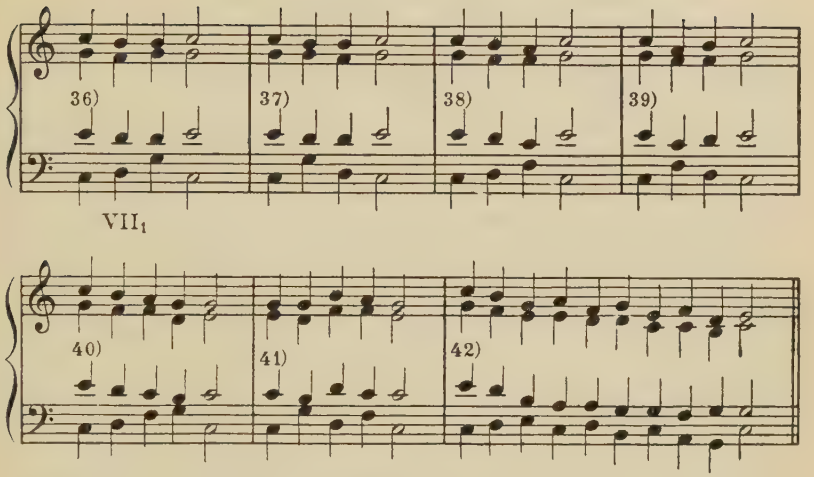


This makes as much sense as 'Cat black a is it.' Quite true though it be that IV-I may be used as a cadence, it is observable that the sense of finality has usually to be strengthened by the placing of a reiterated tonic note in Soprano. Mark Bach's reluctance to use IV-I as final cadence-formula even when he has 6-5 in Soprano in the minor mode: See, for example, chorales 81 and 82. It has been demonstrated that any root may be moved to from the tone-centre. That being the case, examine carefully the following successions in major: (The minor parallel may

always be drawn, employing the Aeolian mode, and allowing for the unsatisfactory effect of the diminished triad on II by inverting it.)




19)
20)
21)
22)
23a)
23b)
24)
25)
26)
27)
28)
III
29)
30)
31)
32)
33)
34)
35)



Make a plan of these forty-two successions in this fashion:

1) I V I Satisfactory (or good)
2) I IV I Satisfactory
3) I V IV I Unsatisfactory (or bad), etc.,

indicating in each case whether, in your musical judgment, the order in which the chords occur is satisfactory, unsatisfactory, or merely tolerable (good, bad, middling) *from the standpoint of harmonic progression in the key and confirmation of the tone-centre.* Not every possible succession is represented,—there are 720 possibilities if I begins and ends each series involving *all* the chords of the key, not to mention those series made up of less than all! The object of the Table is to enable the student to evaluate the harmonic activity of II, VI, III, and VII in comparison mainly with the more direct relationship to the tonic of IV and V.

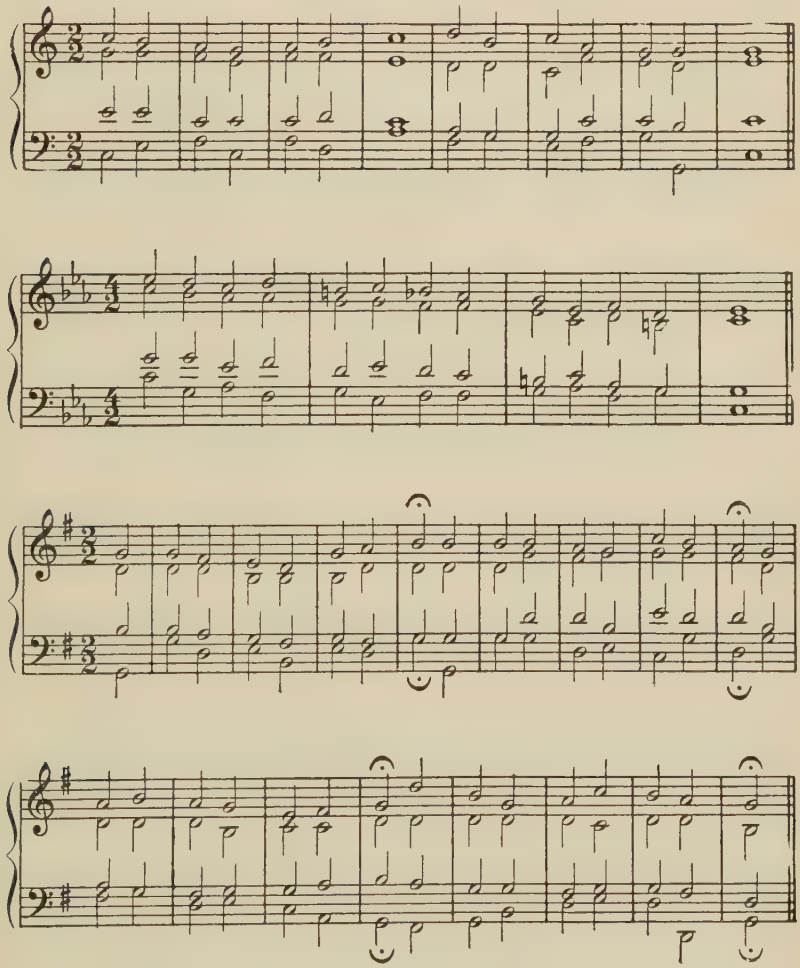
After you have completed your plan, study it carefully with the object of formulating a code of harmonic procedure, asking yourself these questions:

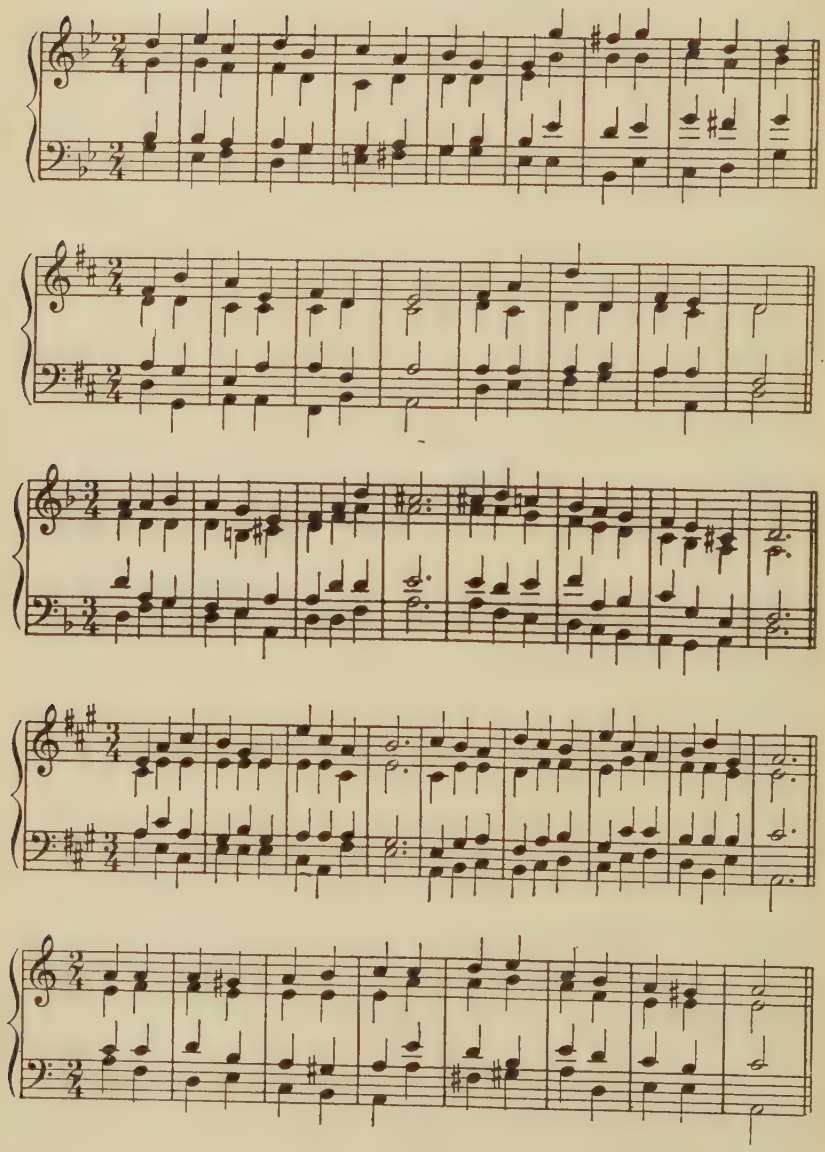
Is the function of any two chords similar? May they be grouped together as some theorists group them, providing each 'principal' triad (I, V, and IV) with a 'subordinate'? Or put the matter in this way: is there more than one triad with tonic function, seeming to be at the key-centre, 'at rest'? with dominant function? with subdominant function? Could you speak of *secondary* function in the sense of needing to pass to the tone-centre *through* a dominant chord? Chords on what roots would come under this classification? For example, no one questions the direct relationship of IV→I. But if IV is preceded by V, what then? [See 3), 4), and 5).] Is the function of IV then subdominant? Is it not rather 'secondary'? Can you explain this? For the exact difference between secondary and dominant function examine and compare 6) and 7), 8) and 9), 12) and 13), 14) and 15).—Consider all the successions involving VI: 16) to 24), 35), and 42). Is its function ever secondary?—We have already spoken of the chord on 7 as having two functions. [See pages 89 and 102.] Is true Seven ever secondary? Is III? What is the exact rôle of III when not followed by VI, as it is not, except in 42), above. Examine the Bass of the satisfactory successions involving III: does the movement of the Bass seem to be melodic or harmonic? Could you supply a more 'functional' Bass to any of the forty-two successions than the one written? What factor in the arrangement justifies the order in 24), 35), and 42)? Could any of these get along without such justification? Would any succession be helped by the accentuation of certain chords? Supply the accentuation in your plan by the sign > . Determine the necessary metre or choice of metres in these cases.

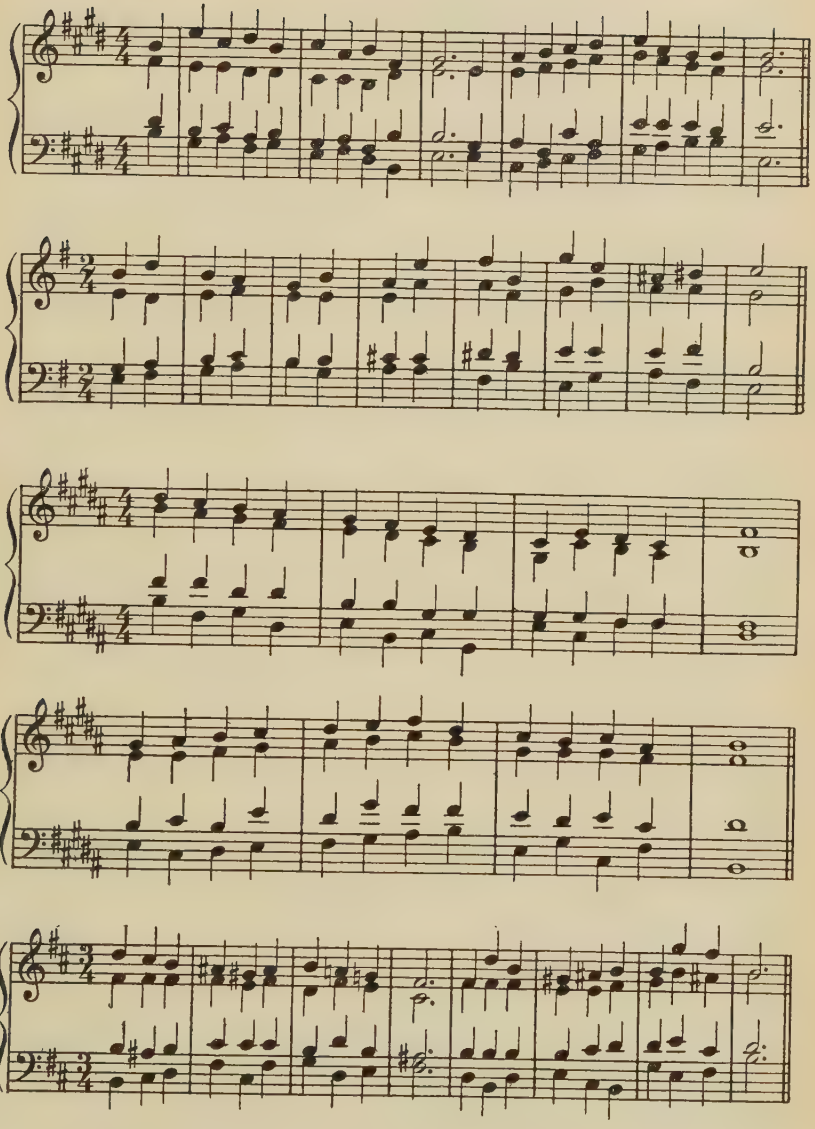
The student is now advised to write out in full his own conclusions as to *Tonality and the Functions of Chords within the Key.*

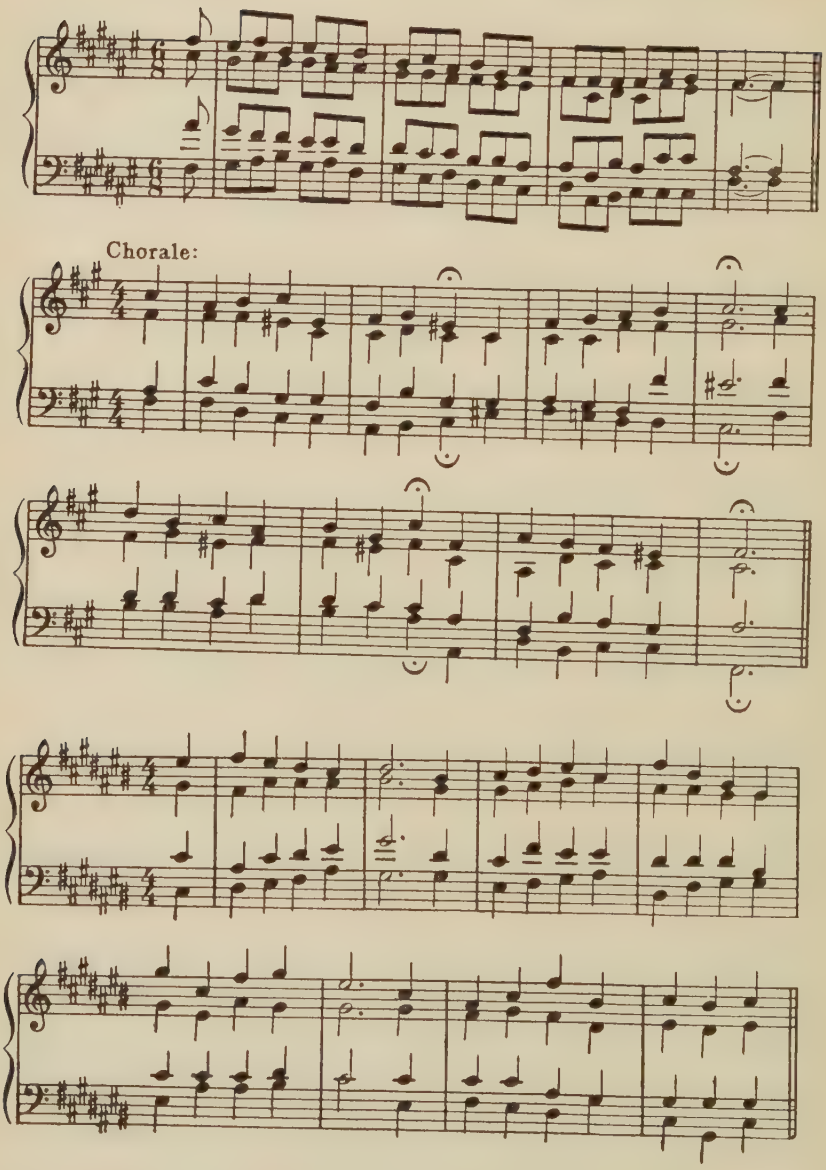
REVIEW OF TRIADS

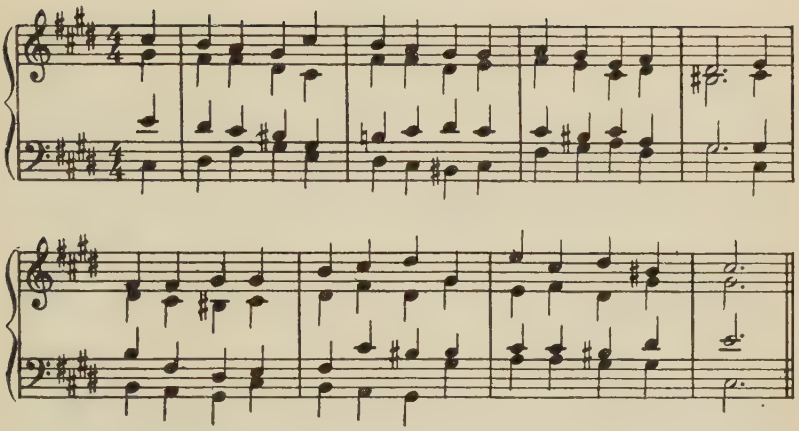
Exercises in Dictation involving all triads and their inversions in both modes, and introducing all manner of doublings, skips, and sequential arrangements.



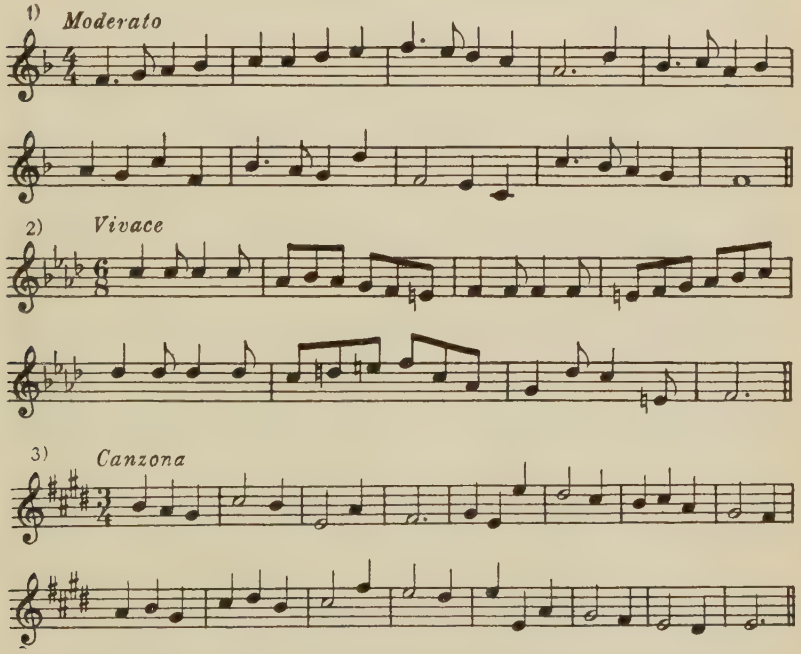


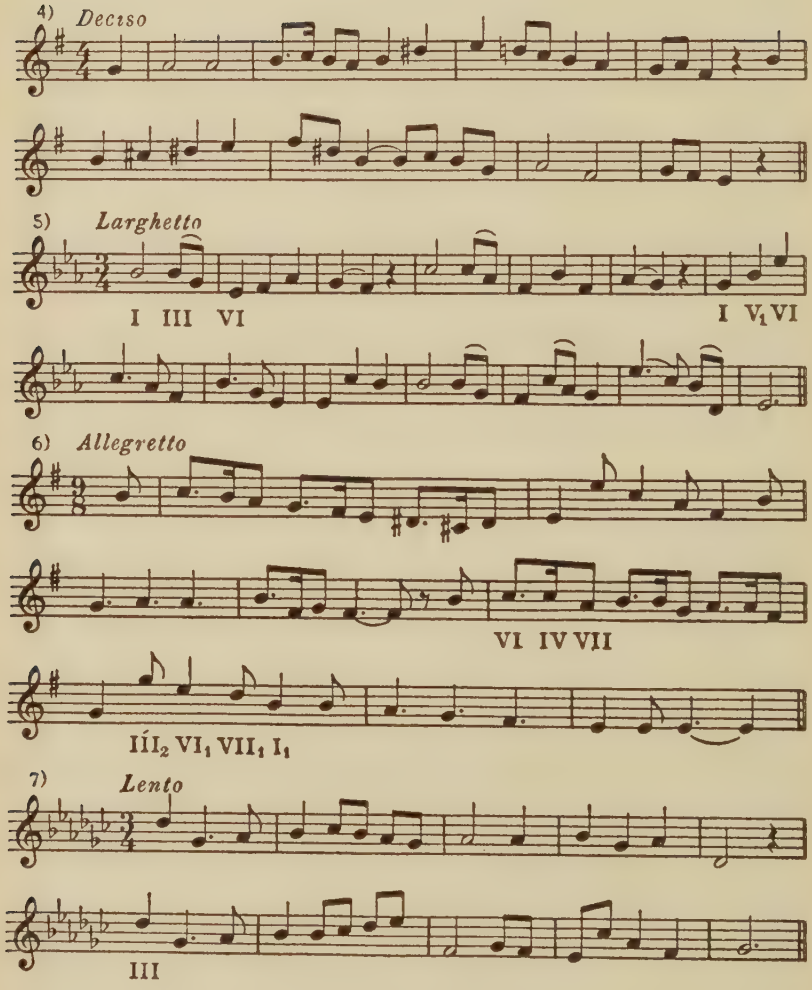



Chorale:



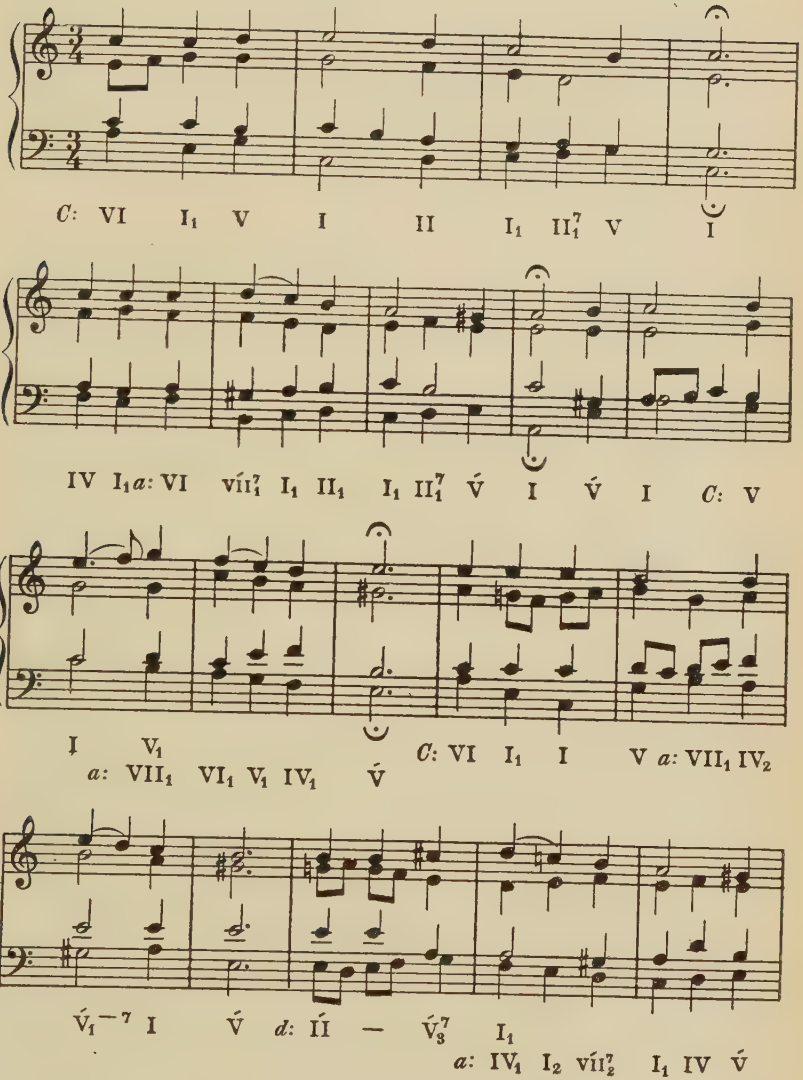
Melodies to be harmonized: (All Triads and their Inversions)

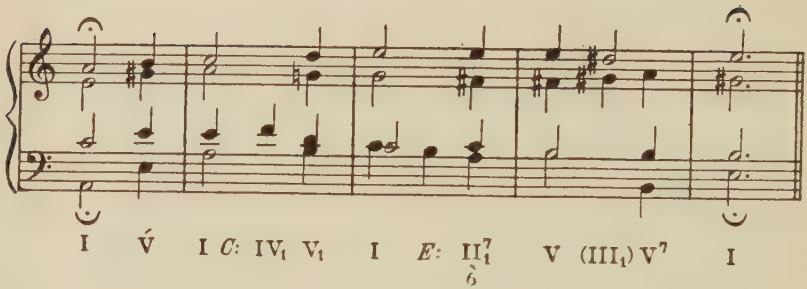




The following chorale illustrates the freedom with which Bach introduces simple triads and their inversions:

Heut' triumphieret Gottes Sohn (79)


C: VI I1 V I II I1 II7 V I
IV I1 a: VI vii7 I1 II1 I1 II7 V I V I C: V
I V1 a: VII1 VI1 V1 IV1 V
C: VI I1 I V a: VII1 IV2
V1 −7 I V d: I — V7 I1
a: IV1 I2 vii7 I1 IV V


I V I C: IV$_6$ V$_6$ I E: II$_6^7$ V (III$_6$) V^7 I

PART III

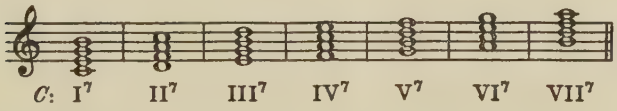
THE STUDY OF DISSONANCE

DIATONIC CHORDS OF THE SEVENTH

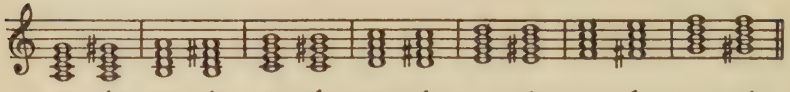
THOUGH the seventh-chord presents to the ear a more complex sound than that of the triad, its technical management is very much easier. Owing to the stability of their structure, the triads of the first and second species ('major' and 'minor' triads) imply very little melodic movement. The handling of the upper parts when the triad is in root-position, and of all four when it is in inversion, is largely a matter of melodic common-sense. Triads of the third and fourth species ('diminished' and 'augmented' triads) are unstable in structure, and therefore what we have learned about their employment we may apply directly to the study of seventh-chords, which, like them, always contain a dissonance.

It is the custom of composers to utilize the seventh-chord structure on every degree of the diatonic scale:

Major mode:



Minor mode:

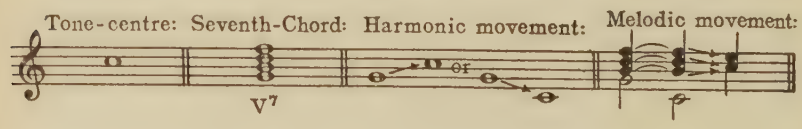


Observe that the scale-6th (F) is not commonly altered in the VII7.

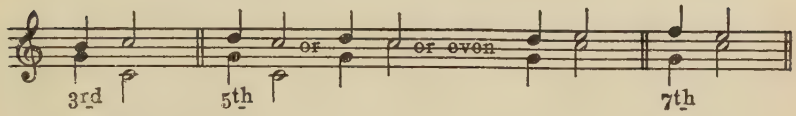
Refer to the Table of the nine species of seventh-chords on page 33. Identify each of the chords listed here with its species, e.g., V7 in major, and IV́7, V́7, and VII7 in minor are 'first species sevenths' (71), etc. This means that these chords are built by adding the interval of a minor seventh from the root to the ordinary structure of a major triad; of course, in and of themselves, they sound alike.

Exercise: Learn to spell rapidly (in the order: root, third, fifth, seventh) and to play at the keyboard every seventh-chord in major and minor, including the variables, in all keys.

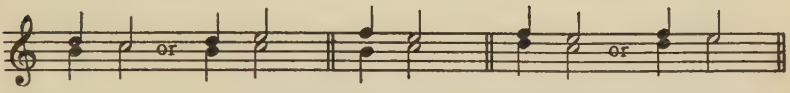
Structural Activity: The addition to a triad of a seventh from the root introduces a dissonance. The presence of dissonance, when there is tonality, involves the relationship of at least two tones of the chord in what might be termed 'unstable equilibrium.' The dissonance is felt to *demand* movement, not to *submit* to it, as in the case of a major or minor triad, just as water when placed on a level surface remains stationary, but moves from a higher to a lower level when the surface is inclined. Let us study this movement in the case of the V7 in *C* major:



Considered interval by interval:

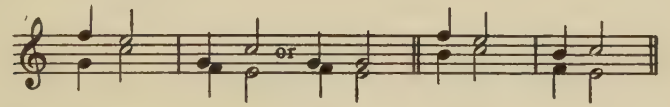


Internal intervals:

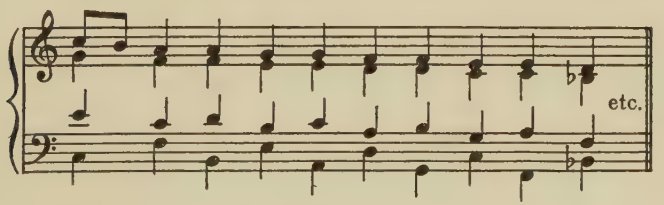


It will be noted that while there may be more than one possibility of movement for a consonant interval, the melodic activity of the tones of a dissonant interval is appreciably more specific. Incidentally, the reason for the 'Dominant' employment of the VII triad becomes clearer.

The movement demanded by dissonant intervals is called 'resolution.' It is represented in the V^7 by the two voices which have the seventh between root and seventh and the diminished fifth between chord-third and seventh or their inversions:



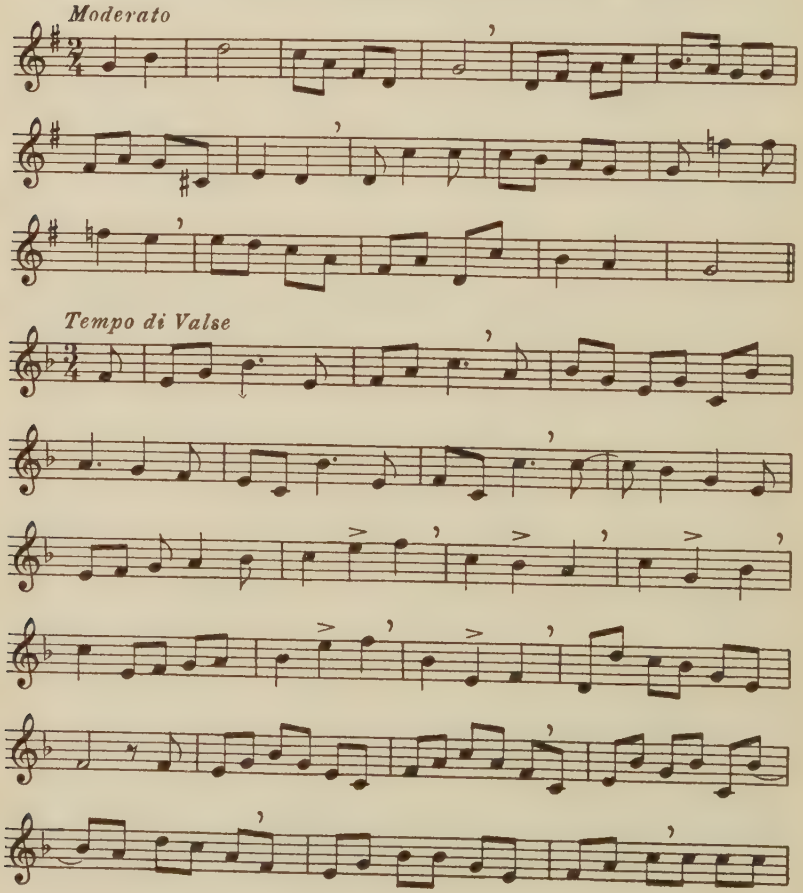
Composers do not, of course, limit themselves to the type of 'resolution' which is implicit in a dissonant chord: that to a consonant triad on a root a fourth above or a fifth below. But the natural character of this resolution makes it very compelling:

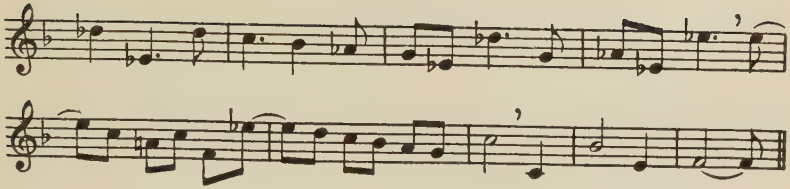


In the last chord written, would B♮ be considered justified by the sequence? But is not B♭ more 'natural'? It is an axiom of science that for every action there is a corresponding reaction. Hence the reaction to dissonance, which is unstable, of consonance, which is stable. The last chord with B♮ would be dissonant.

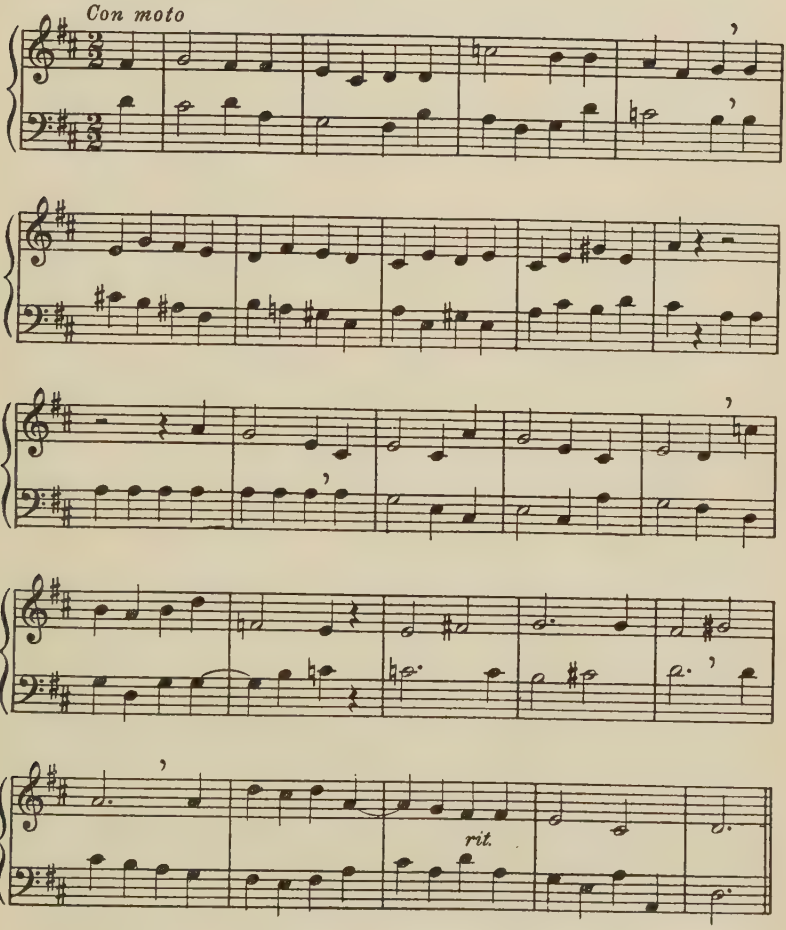
THE CHORD OF THE DOMINANT SEVENTH

Vocalises, based on the characteristic intervals of the V^7:



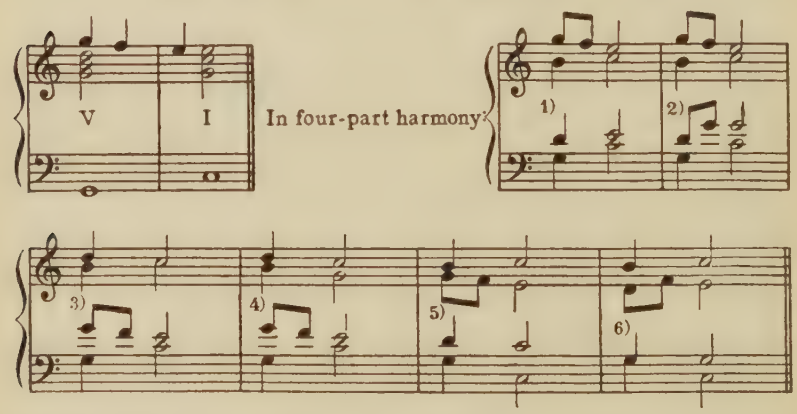


Two-Part Vocalise:



The V^7 ($\acute{V}^7$ in minor) is the most important and most useful of the seventh-chords because it is based on the most active root in the key, and is furthermore consonant with No's. 4, 5, 6, and 7 in the series of overtones from a given fundamental. (See p. 19.) The fact that No. 7 is slightly flat in comparison with the tuning of the note in Equal Temperament does not invalidate the acoustical justification of the *combination.*

From the melodic standpoint, the seventh of the Dominant chord may be regarded as a 'passing-note' (4 of the scale) interposed between 5 in the Dominant triad and 3 in the Tonic:



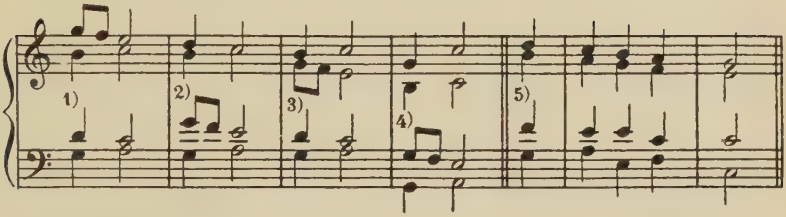
Observe that in four-part writing each example given has certain unusual features of doubling or of voice-leading.

In which example is the V^7 composed of but three tones?—Which tone is missing?—In which example does the I have but two tones, and which is missing?—Both chords are complete in but one example. What happens in that instance?—Do you consider that parallel perfect fifths are unsuccessfully avoided in 2)? Would you prefer to have the Bass move *down* to the c an octave lower? (See Chorale No. 74, the conclusion.)

Examine the cadences made up of V^7-I in the Bach chorales. Which of these types of resolution of the V^7 does he seem to prefer, and why?

These uses of the V with passing seventh are identical in major and in the 'harmonic' minor, where the symbol is, of course, $\acute{V}^{-7}$.

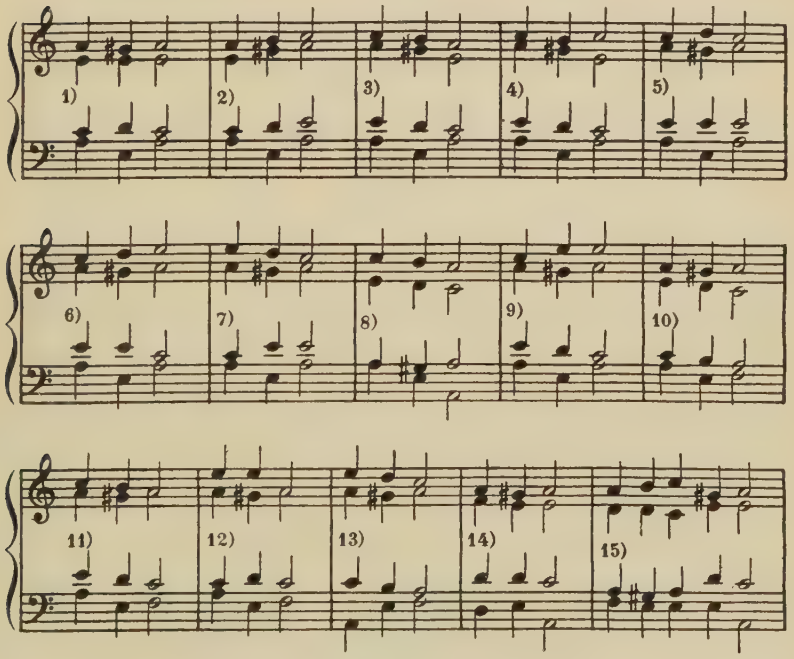
Note also the following:

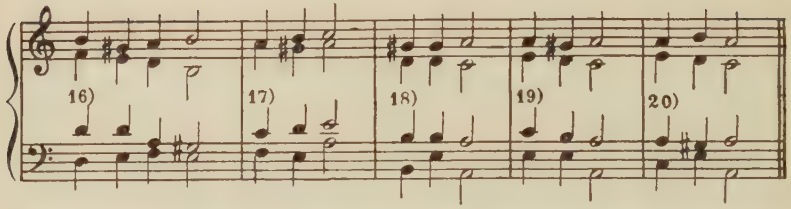


Is the V⁷ lacking a tone in any of the foregoing examples?—What is the usual doubling in the VI and why?—In which example is there an exception to this doubling?—Why?

These examples are equally applicable to the harmonic minor mode on c except 5), in which the V⁷ would have to be 'grave,' i.e., written with B♭. Why?

Table of the V⁷:





The successions of the Table should be tried also in major and in the Aeolian minor. Criticize them minutely. Discuss especially the effect of the upward movement of the chord-seventh in 2), 6), and 17).

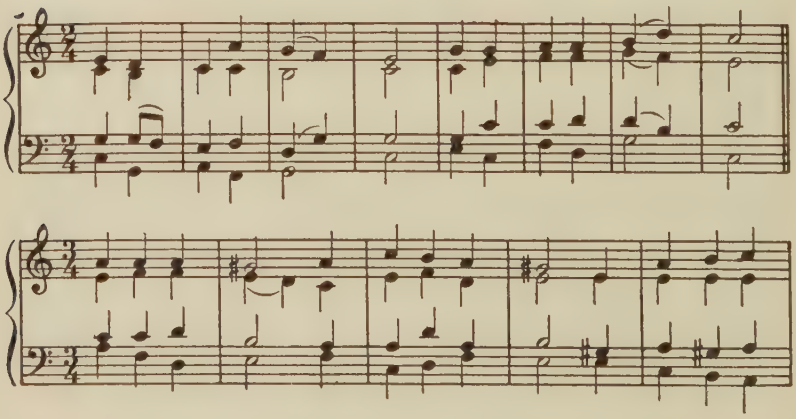
Keyboard Harmony: Work out the following successions in the usual manner.—

$\frac{4}{4}$ I I_1 V V^7 | I – – – ‖ $\frac{3}{4}$ II_1 I_2 V^7 | I – – ‖

$\frac{4}{4}$ I III IV V^7 | I – – – ‖ $\frac{3}{4}$ VI II_1 V^7 | I – – ‖

$\frac{4}{4}$ I VI IV_1 V^7 | I – – – ‖ $\frac{3}{4}$ I_1 V^7 | VI II V^7 | I ‖

Dictation: (V^7 and V^{-7})



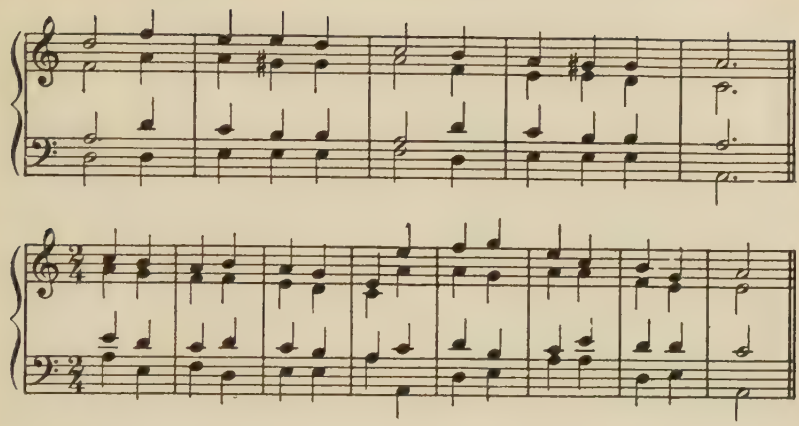
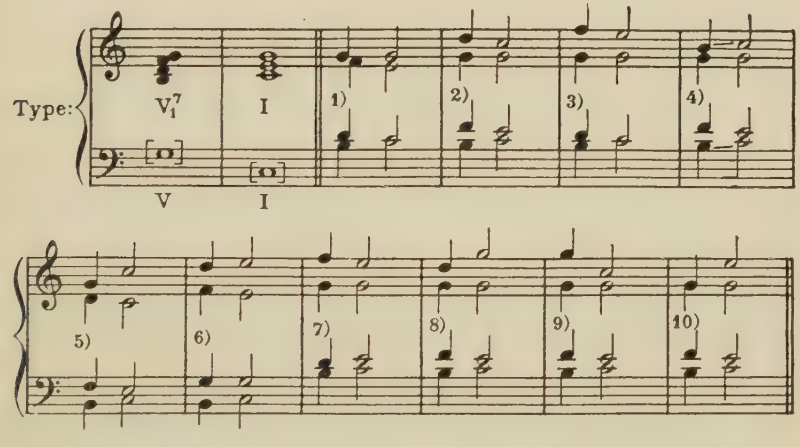


Table of the V_1^7:



Criticize these resolutions of the V_1^7. Can the chord in this inversion be followed by VI as easily as the V^7 in root-position?—Are these examples equally valid in the minor mode?—for both forms of V^7?—Do you object to the effect of the octave in 5) and the fifth in 8), arrived at by direct motion in the outer voices?

Keyboard Harmony: Comparison of V_1 and V_1^7.—The successions which follow are not metrical.

I	V_1	$\hat{I}$	I	V_1^7	$\hat{I}$	I_1	V_1	$\hat{I}$	I_1	V_1^7	$\hat{I}$	I_2	V_1^7	$\hat{I}$
IV	V_1	$\hat{I}$	IV	V_1^7	$\hat{I}$	IV_1	V_1	$\hat{I}$	IV_1	V_1^7	$\hat{I}$	IV_2	V_1	$\hat{I}$
IV_2	V_1^7	$\hat{I}$	II	V_1	$\hat{I}$	II	V_1^7	$\hat{I}$	II_1	V_1	$\hat{I}$	II_1	V_1^7	$\hat{I}$

Are the successions with II effective in minor?

Work out also the following:

$\frac{4}{4}$

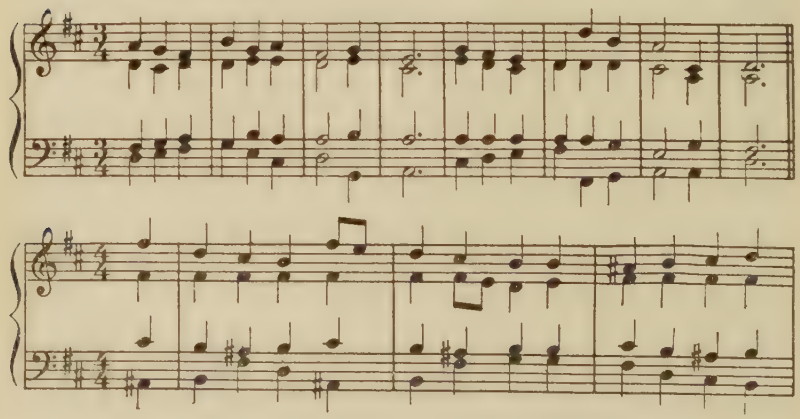
5	5	6	7	8	or, in minor	5	5	$\acute{6}$	$\acute{7}$	8
I	V_1^7	II_2	V^7	I		I	$\acute{V}_1^7$	$\acute{II}_2$ N.B.	$\acute{V}^7$	I – – –

$\frac{4}{4}$ $\frac{2}{4}$

5	5	6	7	$\bar{2}$	1 —	5	5	8	$\bar{4}$	3	2	1 —
I	V_1^7	IV_1	V^7	—	I – –	I	V_1^7	VI	IV_1	I_2	V^{-7}	I —

Is the last succession possible in minor?

Dictation (The V_1^7):



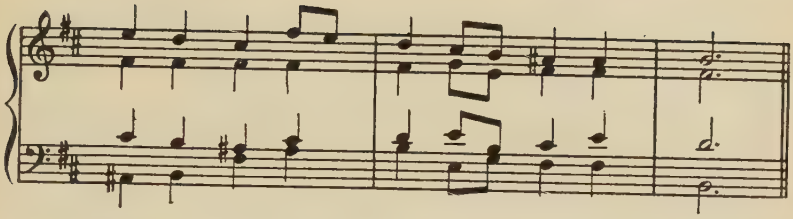
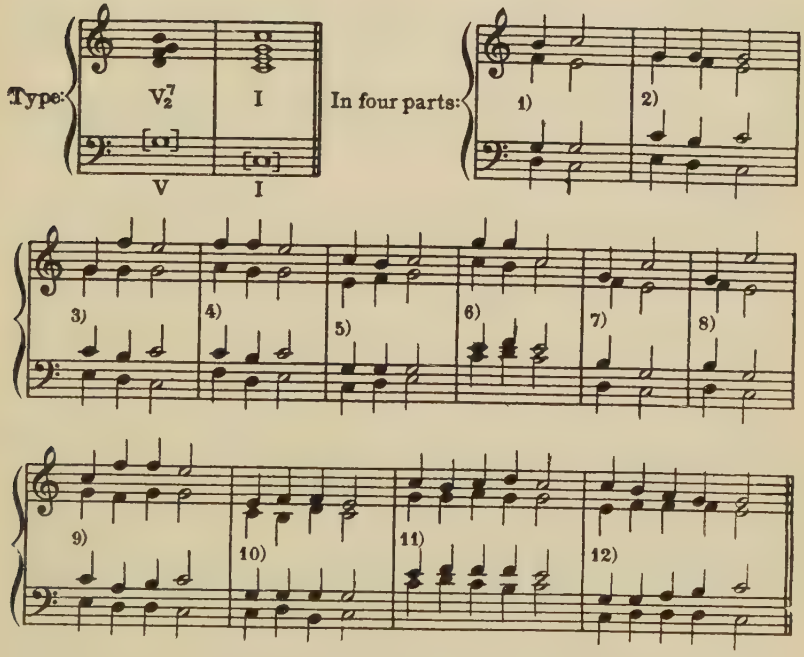


Table of the V_2^7:



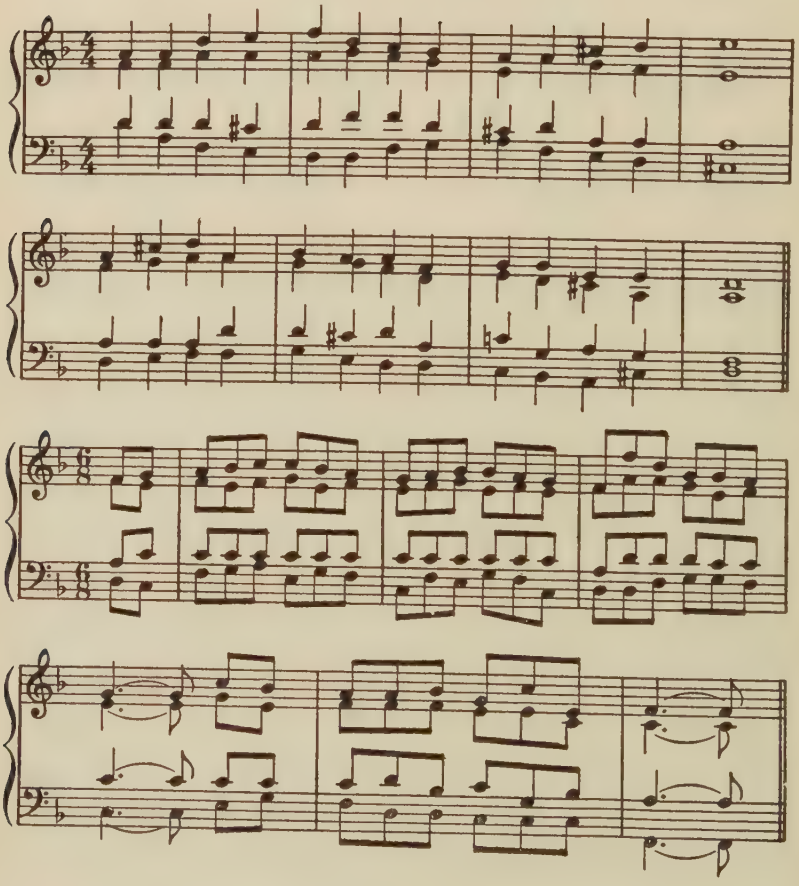
Analyze critically the successions as given.

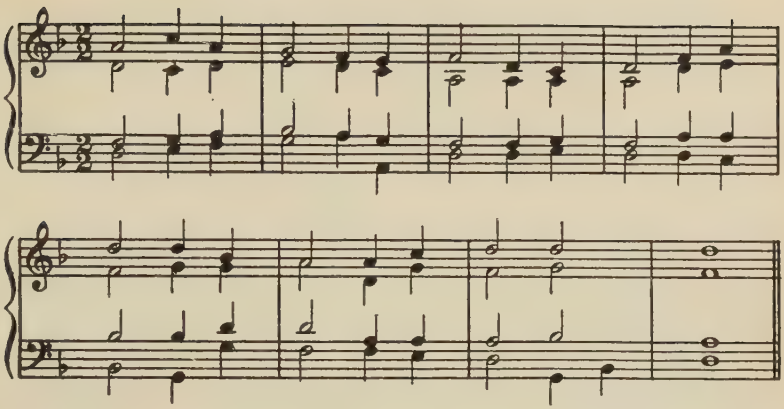
Keyboard Harmony: In addition to the successions of the Table, work out the following comparisons in the minor mode, with all possible Sopranos:

$\| I_1 \; \acute{V}_2 \; \hat{I} \| I_1 \; vii\acute{}_1 \; \hat{I} \| I_1 \; \acute{V}_2^{-7} \; \hat{I} \| I_1 \; \acute{V}_2^{7} \; \hat{I} \|$

$\| I \; \acute{V}_2 \; \hat{I}_1 \| I \; \acute{V}_2^{-7} \; \hat{I}_1 \| I \; \acute{V}_2^{7} \; \hat{I}_1 \|$

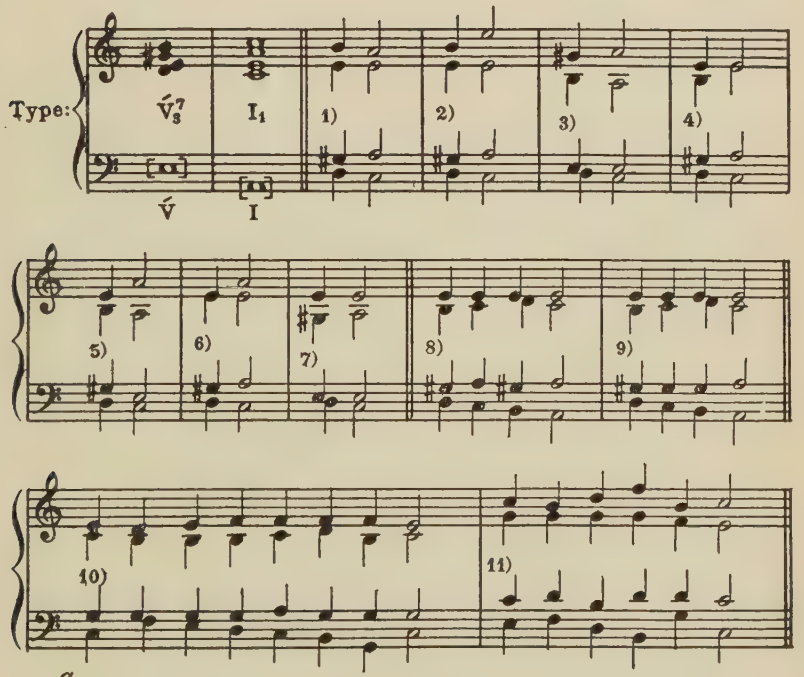
Dictation: (The V_2^7)





Do you object to the parallel perfect fifths between Alto and Tenor in measures 4-5?

Table of the V_3^7:



Analyze critically the examples involving V_3^7 as given. Review the examples for the V^7 in root-position and in first and second inversions. Then examine the statements which follow. Do not accept them till you have put them to the proof.—

GENERAL CONSIDERATIONS

1) Inversions of all chords are governed by the melodic tendencies of their several voices: the Bass-tone as well as the upper parts should be treated as belonging to a melodic line.

2) Inversions of seventh-chords are commonly 'complete,' i.e., no tone is omitted in four-part harmony.

3) The usual resolution of all Dominant chords is the Tonic triad, whether inverted or not.

4) While the V or V^7 may be followed by VI, such a succession being termed a 'deceptive resolution,' their inversions do not so readily lend themselves to that resolution. (Why not?) It may occur in successions in which one voice moves up or down the scale-line.

5) If a chord with Dominant function is followed by any other harmony save I or VI, another Dominant chord normally succeeds that harmony, which may be considered as 'passing' or 'recessive.' (See p. 140.)

6) Any 'all Dominant' succession is possible, including the VII used as Dominant, provided the voice-leading be logical.

7) A V^7 may usually be substituted wherever a plain V is possible, whether in root-position or in inversion.

Keyboard Harmony: (All inversions of V^7):

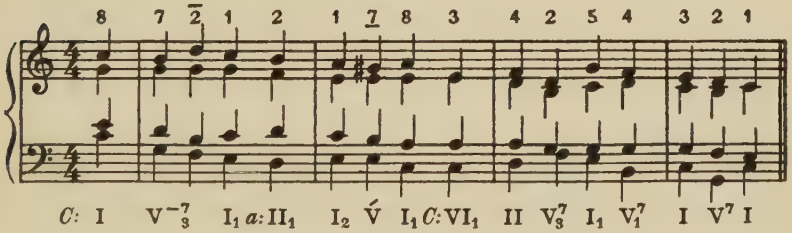
Harmonize the following Soprano successions in both modes, using every possible position of the V^7 for the *second* chord; the first and last chords should be Tonic:

8 7 8	1 2 1	1 2 3	3 2 3	3 4 3	3 2 1	3 2 5
3 4 5	3 7 8	5 5 5	5 4 3	5 2 3	5 7 8	5 7 8

Dictation. (All inversions of V⁷):

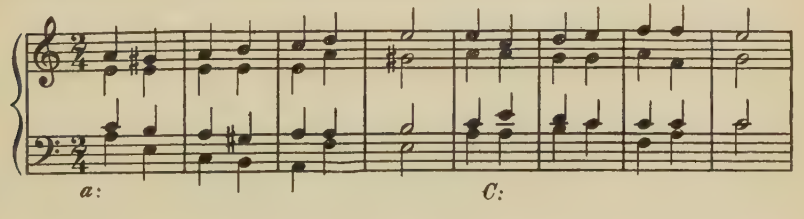
The exercises for dictation now introduce the simplest type of modulation, that to the relative major or minor and return, the modulatory chord being common to both keys, though symbolized in either key at discretion. For the student familiar with the process of harmonic analysis as explained earlier in this manual and applied to the Bach chorales, the hearing of modulatory exercises should present no great difficulty. Review the section on modulation, pages 26-30.

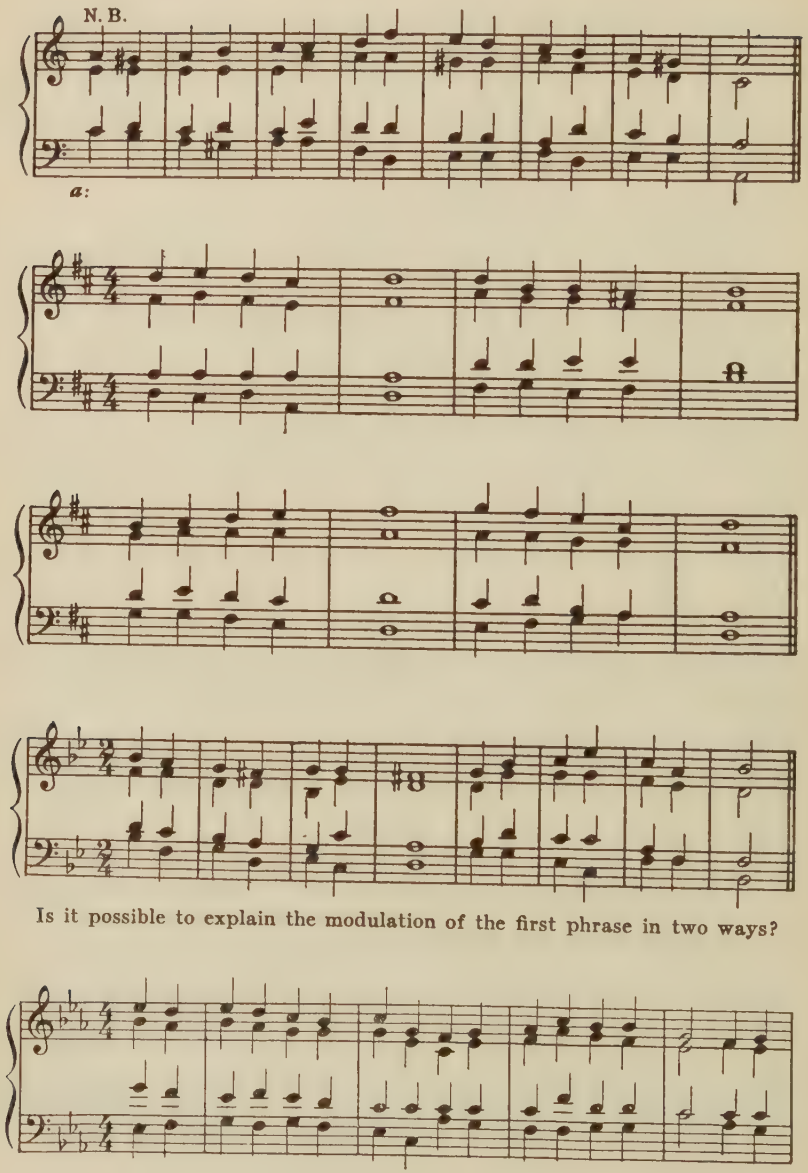
MODEL



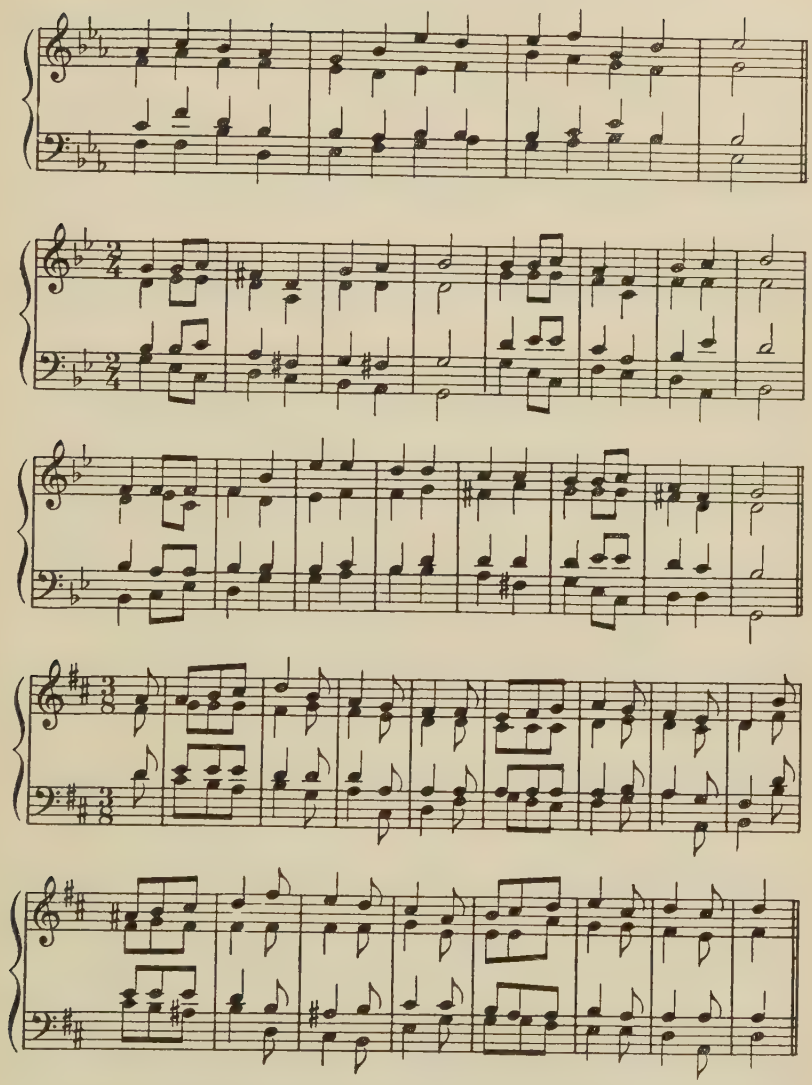
In all dictation exercises involving modulation the melodic symbols for the Soprano part should be recorded.

It should be remembered that the harmony may begin arbitrarily in a *new key* at the point where a *new phrase* begins, as in the Bach chorales.



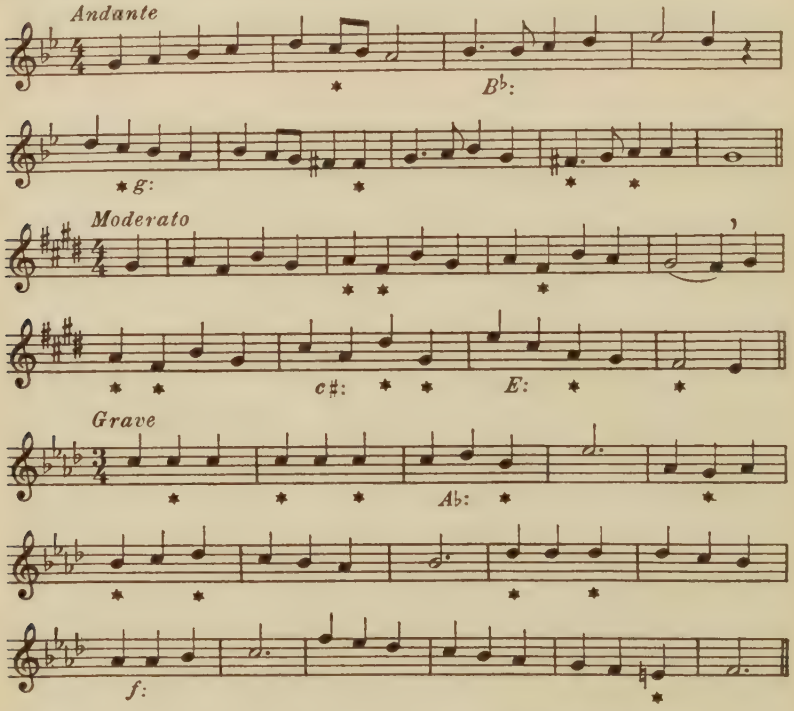


Is it possible to explain the modulation of the first phrase in two ways?

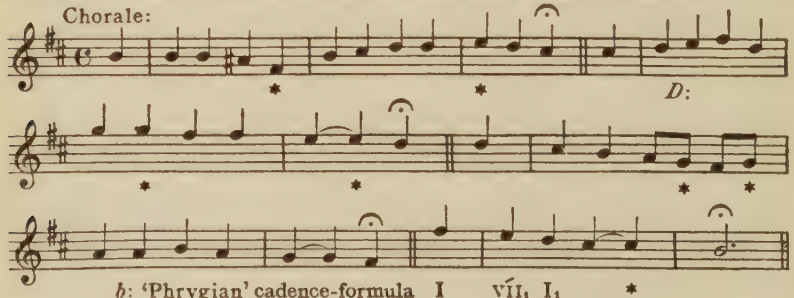


Melodies to be harmonized: (Involving modulation to the relative major or minor and return.)

In these melodies, and hereafter in this manual, an asterisk marks certain of those notes which *may* be harmonized by the chords which are being studied. A slur is occasionally used to indicate that the bass-note may remain the same under the slurred notes of the melody.



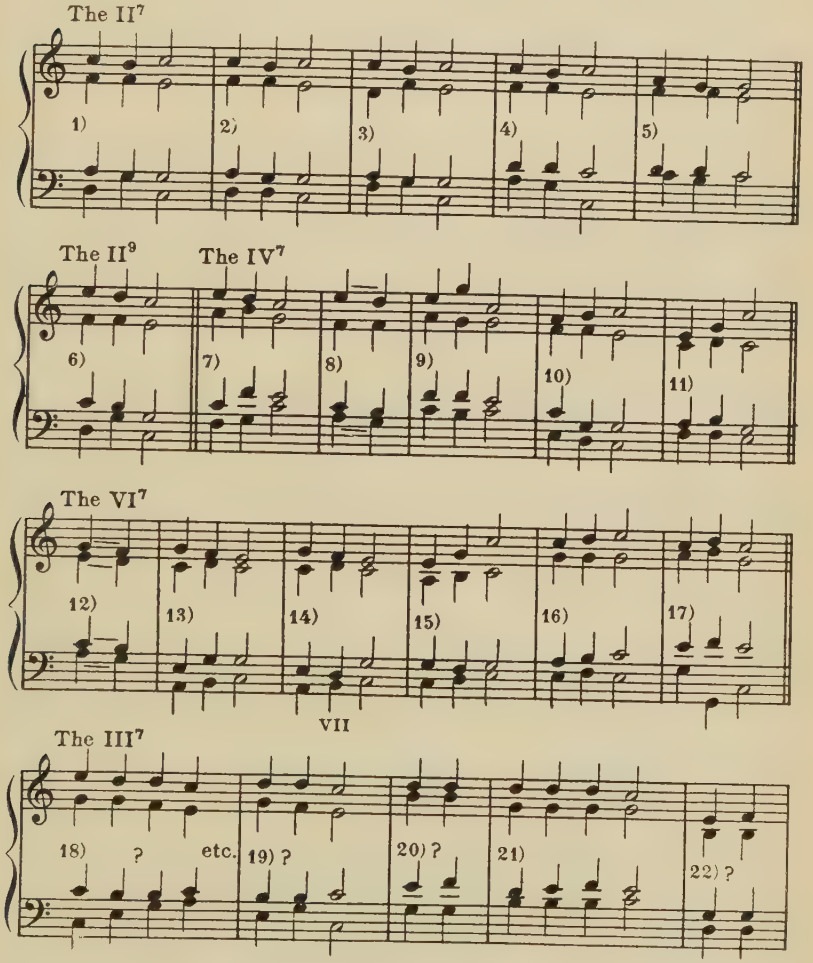
Harmonize also the following Chorale-melody, in strictly simple style; the tied notes may be written as halves, but harmonized with two chords:

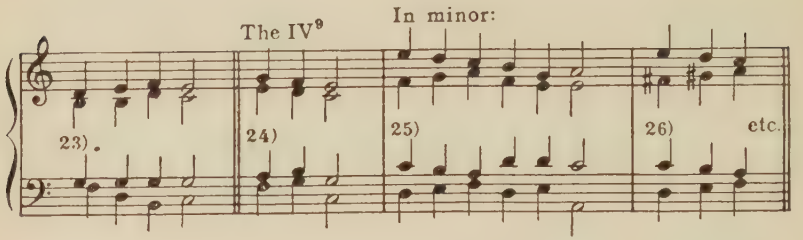


b: 'Phrygian' cadence-formula I VII$_1$ I$_1$ *

Table of Dissonant Chords on other roots than V, in their relation to V^7:

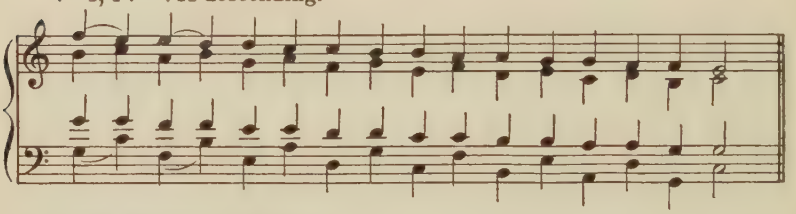
While the later exercises in Keyboard Harmony and Dictation take up the remaining dissonant chords of a diatonic key systematically, there is no need of further tabulation of these chords than the successions given here, which represent them in their relationship to the V^7 and its inversions.



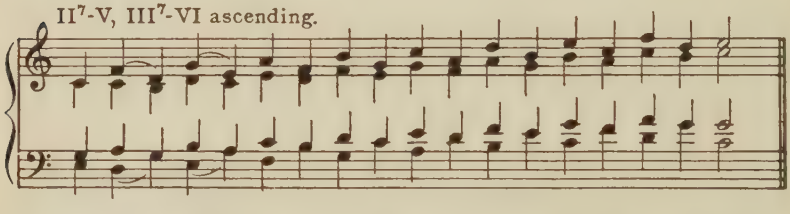


Study also the following sequences:

V^7-I, IV^7-VII descending.



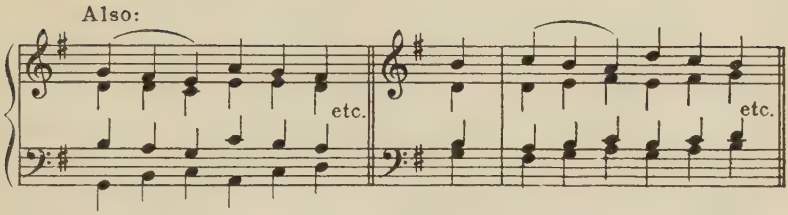
II^7-V, III^7-VI ascending.



Keyboard Harmony: Work out the foregoing sequences in the minor mode, using the acute forms of chords whenever possible. Play the sequence V^7-I, *descending*, with the V^7 complete.

Work out also the following sequences in both modes:

$V_{\frac{7}{5}}$-I, $IV_{\frac{7}{5}}$-VII, descending.	$V_{\frac{7}{5}}$-I, $VI_{\frac{7}{5}}$-II, ascending.
$V_{\frac{7}{3}}$-I, $IV_{\frac{7}{3}}$-VII, descending.	$V_{\frac{7}{3}}$-I_1, $VI_{\frac{7}{3}}$-II_1, ascending.
$V_{\frac{7}{3}}$-I_1, $IV_{\frac{7}{3}}$-VII_1, descending.	$V_{\frac{7}{3}}$-I_1, $VI_{\frac{7}{3}}$-II_1, ascending.
V^7-I^7, IV^7-VII^7, descending.	Can this type be worked out, ascending?
$V_{\frac{7}{5}}$-$I_{\frac{7}{3}}^7$, $IV_{\frac{7}{5}}$-$VII_{\frac{7}{3}}^7$, descending.	Can this type be worked out, ascending?
$V_{\frac{7}{3}}$-I^7, $IV_{\frac{7}{3}}$-VII^7, descending.	Can this type be worked out, ascending?



Work out other sequences of three and four chords in succession, in both modes, ascending and descending; write out one version in notation, but play in all keys.

HARMONIC ACTIVITY

Having considered the various possibilities of connection involving the V^7 with the triads of the key and with the other seventh-chords, experiment with these same types of connection involving the II^7, VI^7, III^7, VII^7 (as true 'Seven' and as dominant), and IV^7, in turn. These connections all appear during later exercises for dictation but are not tabulated as was the case with the various triads. Query: Is the functional action of the *root* the same whether the chord based on it be triad, seventh, ninth, or still greater combination?

A systematic arrangement for this experiment is possible as follows:

1) When one chord is followed by another on a root a fourth above or a fifth below.

2) When the second chord is a fifth above or a fourth below.

3) When it is one tone above. (Practically never a seventh below. Why?)

4) When it is one tone below.

5) When it is a third below or a sixth above.

6) Third above or sixth below.

These are the possibilities, but not all are equally valid. In making the indicated experiment, do not confine yourself to the two chords which determine the classification. Begin and end every succession with a tonic chord unless your conclusion about a given connection can be made clearer without doing so. Admit no succession that fails to satisfy you musically. Then ask yourself these questions:

Are the seven possible roots of a diatonic key always used functionally in the manner indicated by the Roman-numeral symbols? (You are familiar with at least one exceptional instance: when the chord on 7 acts as if its real root were 5; are there other cases?) Which of these kinds of succession point towards a conclusion, progress *in* toward the tonic, and might be termed illustrative of 'resolution'? Which do just the opposite, point away from the tone-centre, and might be termed 'recessive'? Does this outward tendency need to be counteracted? Do certain types of connection appear to be made up of melodic movement exclusively? If so, what is the underlying harmonic movement? How do you explain the harmonic action in the types of succession numbered 5) and 6)?

Does a sequential arrangement justify all successions in which it occurs? In certain cases, might it be held that a succession is explained by an *underlying* harmonic sequence, certain of the chords being minus their real roots? Does this study affect any of the conclusions you reached in your previous consideration of 'Tonality and the Functions of Chords'?

THE II^7

Keyboard Harmony: Play the following successions in both modes and all keys, with all possible Sopranos. [Hereafter

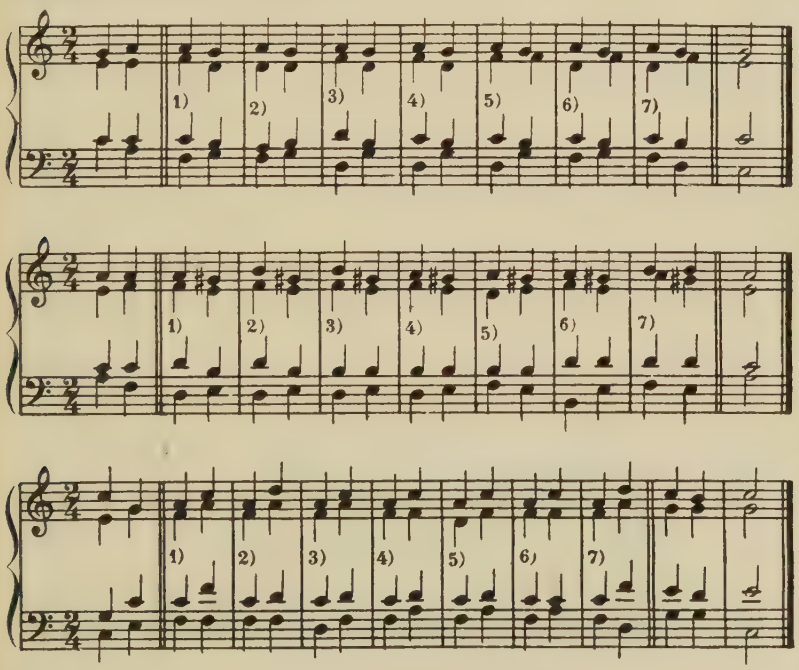
this same procedure should be observed for every section of keyboard work.]

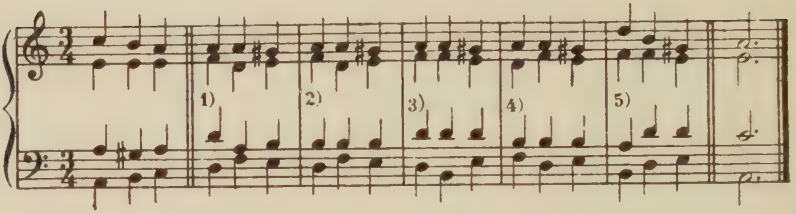
$$\left\|\begin{smallmatrix}4\\4\end{smallmatrix}\ \mathrm{I}\ \ \mathrm{I}_1\ \ \mathrm{II}^7\ \ \mathrm{V}^7\ \middle|\ \mathrm{I}\ -\ -\ -\ \right\|\begin{smallmatrix}2\\4\end{smallmatrix}\ \mathrm{I}\ \middle|\ \mathrm{II}^7_1\ \ \mathrm{V}^7_3\ \middle|\ \mathrm{I}_1\ \ \mathrm{II}^7\ \middle|\ \mathrm{I}_2\ \ \mathrm{V}^7\ \middle|\ \mathrm{I}\ \right\|$$

$$\left\|\begin{smallmatrix}4\\4\end{smallmatrix}\ \mathrm{I}\ \ \mathrm{VI}\ \ \mathrm{II}^7_2\ \ \mathrm{V}\ \middle|\ \mathrm{I}\ -\ -\ -\ \right\|\begin{smallmatrix}2\\4\end{smallmatrix}\ \mathrm{I}\ \middle|\ \mathrm{II}^7_1\ \ \mathrm{VI}_2\ \middle|\ \mathrm{II}^7\ \ \mathrm{II}^7_3\ \middle|\ \mathrm{V}^7_1\ \ \mathrm{V}_1\ \middle|\ \mathrm{I}\ \right\|$$

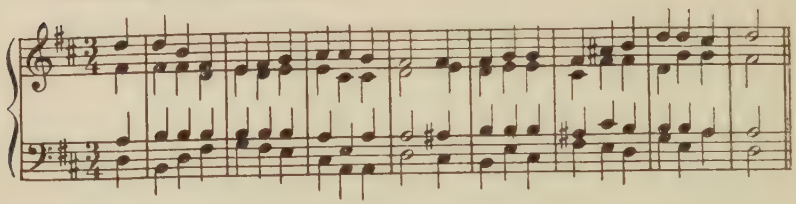
Dictation involving the II⁷ and its inversions. *Preliminary Study in Differentiation between II, IV, and II⁷.*

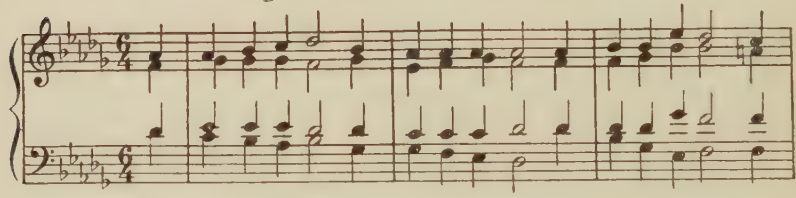
Note: The exercises are so written that the beginning and end of each are identical. The measures between the light double-bars marked 1), 2), etc., are to be *inserted* one by one, first in the order in which they occur, then with that order changed. The first exercise, for example, is properly three measures long, but it has *seven alternative second measures.*—Query: Are the parallel fifths objectionable in the third exercise?

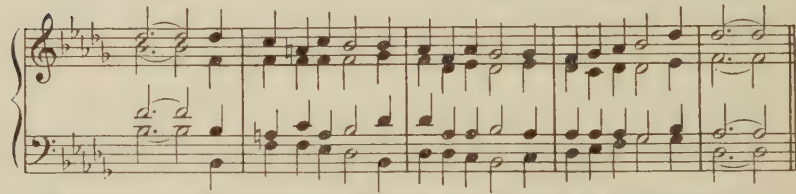




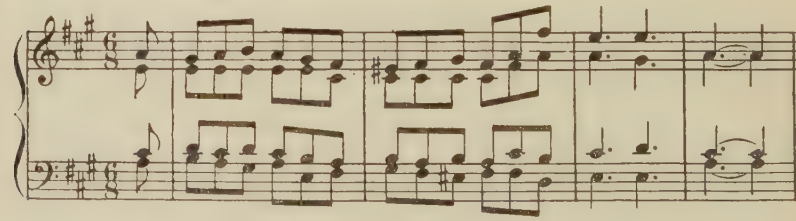
Exercises for Dictation:

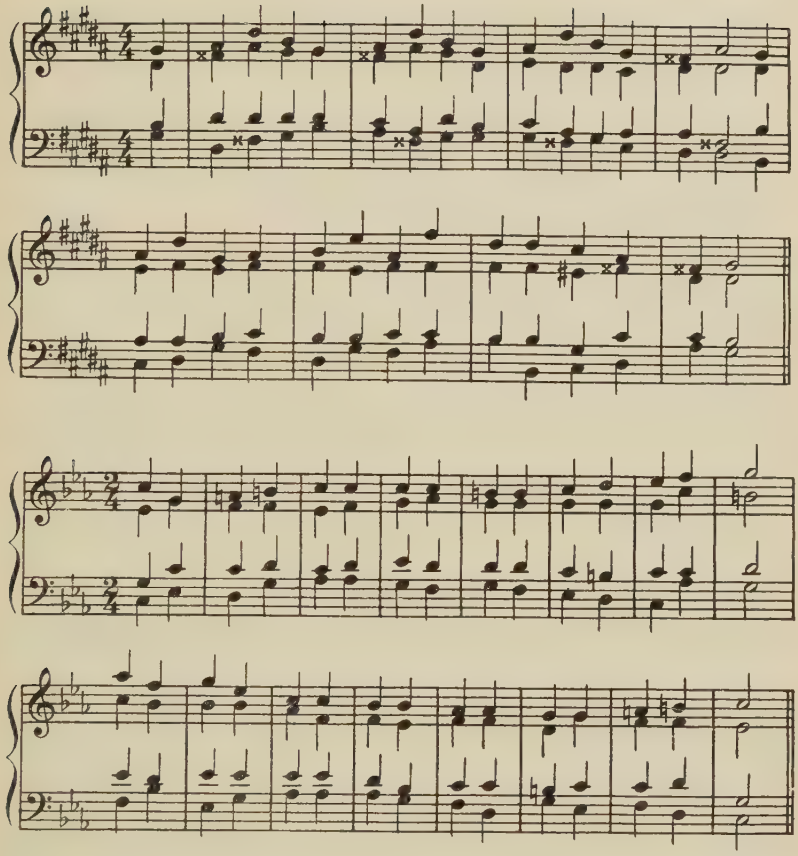




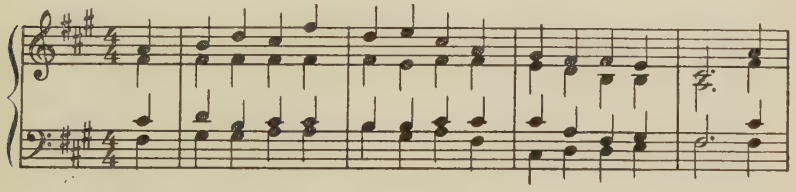


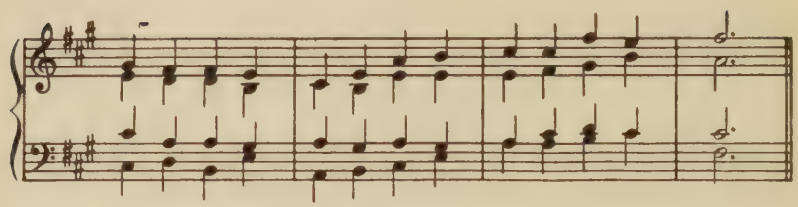
In the preceding exercise and in those similar to it, it is advisable to have the students take the melody from dictation first, or else make sure that they hear and comprehend the rhythmic pattern.





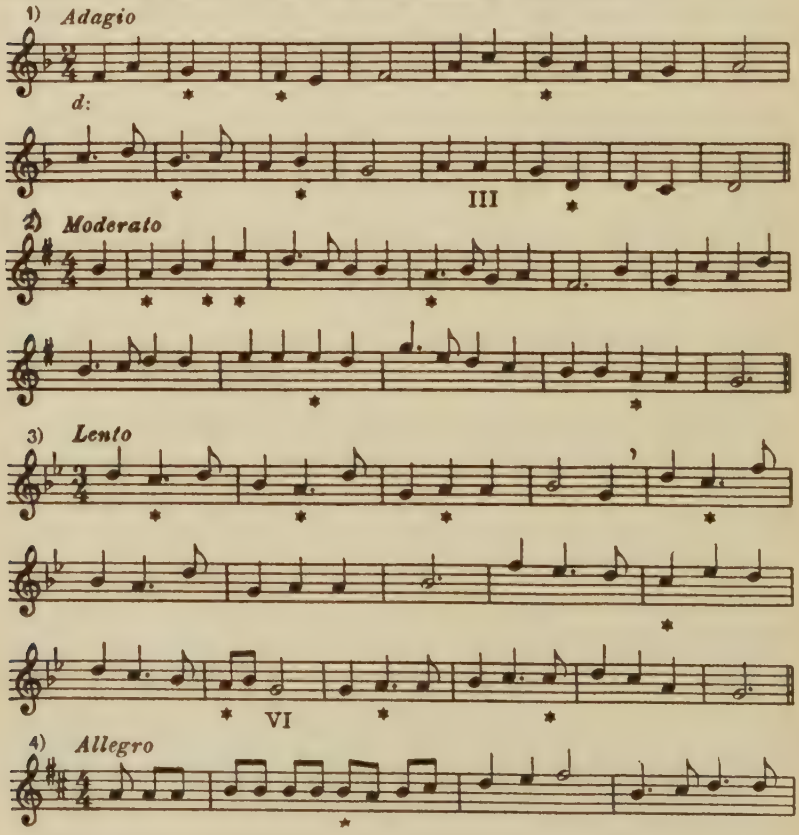
For an instance in the Bach chorales of the II⁷ in minor, see No. 221, 2nd phrase. There is casual use of it in Nos. 120 and 351. In general, however, Bach has avoided the II's with 6.

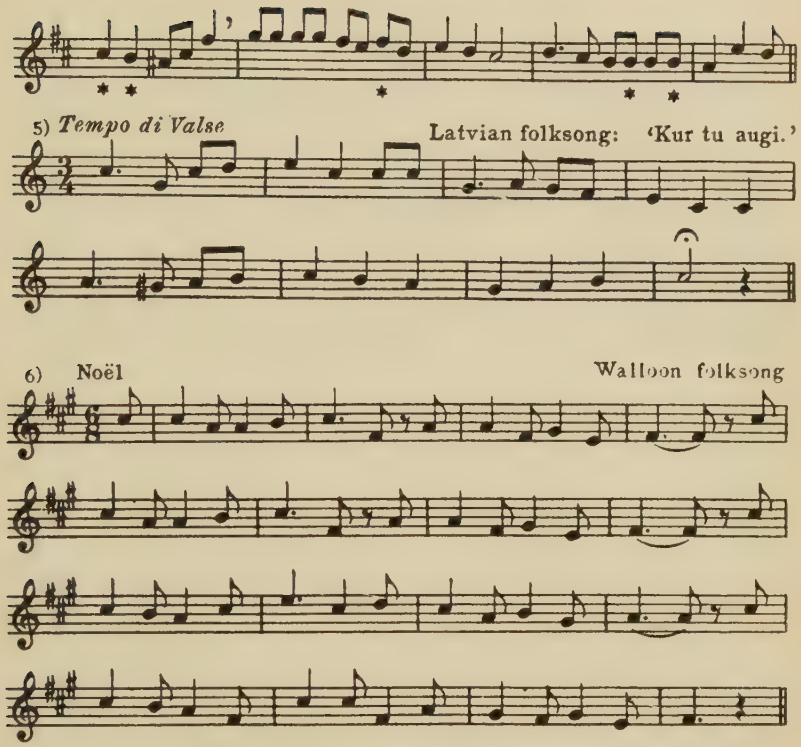




Melodies to be harmonized:

As in the case of the dictation exercises, each of these melodies involves at least one modulation to the relative major or minor and back again, using as modulatory chord one of which all the tones are diatonic in either key. An exception may be made to this at the beginning of a new phrase.



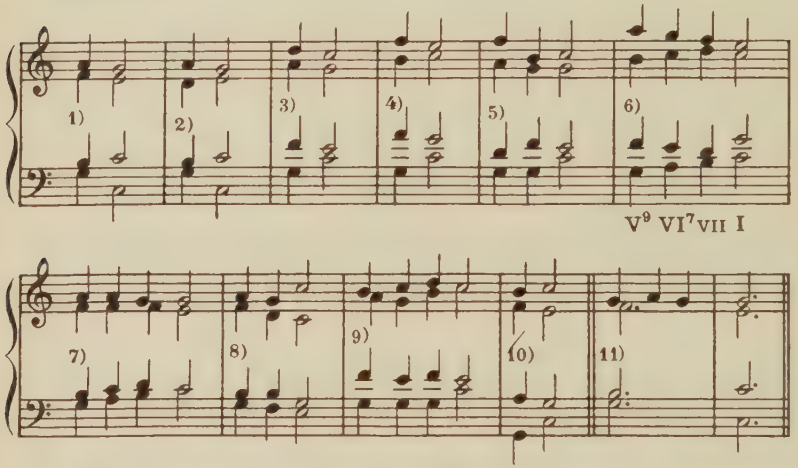


The harmonization should be slightly varied whenever there is a literal repetition of a melodic phrase, as in this song.

DOMINANT NINTH AND LEADING TONE SEVENTH

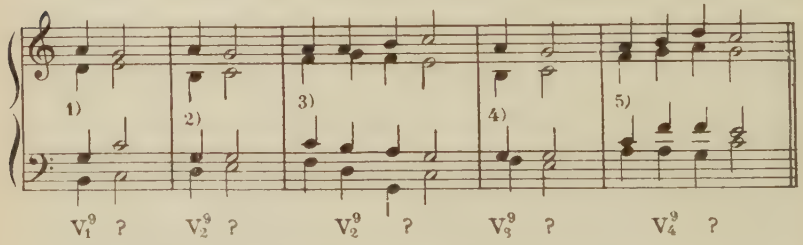
The 'ninths' on the dominant and second-dominant roots in major, and on the dominant and subdominant roots in minor, are by all odds the most common, and are the only ones to which we need devote special attention in this manual. Since the ninth-chords are made up of five tones, it is necessary to omit one of these when the arrangement is for four-part harmony.

Table of the V^9:



In 1) the chord-fifth is omitted; in 2), the chord-seventh: which omission do you prefer?—In 3), the chord-third is omitted. Why?—In 5) the chord-third occurs in a repetition on the dominant. Do you perceive the value of this?—In 6) and 7) is the movement predominantly harmonic or melodic?—Is there any sanction for the structure of the V^9 in the overtones of a given fundamental? Would the shifting of the ninth an octave lower (making it a second) be justified acoustically?—In 11), the A is obviously an ornamental melodic tone. Do you feel that the ninth in any of the other successions has a similar status, that it does not 'belong'?—How many of these successions are possible in minor?—Can V^9 'grave' be used as readily as V^9 'acute'?—

Examine the following:



Experiment further with the inverting of the V^9. Does the

ninth combine readily with the other chord-members? Do you or do you not prefer to regard it as inharmonic?

The VII⁷ 'as Dominant' parallels the similar use of the triad on 7. Unlike the V⁹, it is handled as simply in inversion as any other seventh-chord. The vii⁷ in minor is that weasel of chromatic harmony, the 'Chord of the Diminished Seventh' or Fifth Species seventh. (75) Being made up of intervals *equivalent* to a minor third, it is very difficult for the ear to perceive its exact arrangement when inverted, though the sound of the chord itself among other diatonic chords is distinctive.

Keyboard Harmony: (V⁹ and VII⁷)

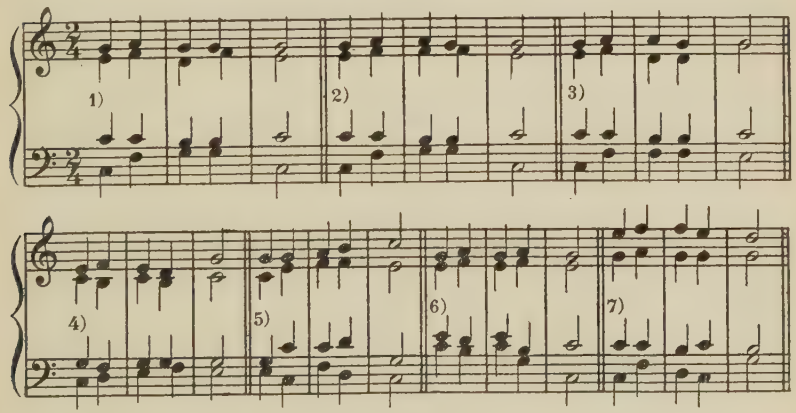
With all possible Sopranos:

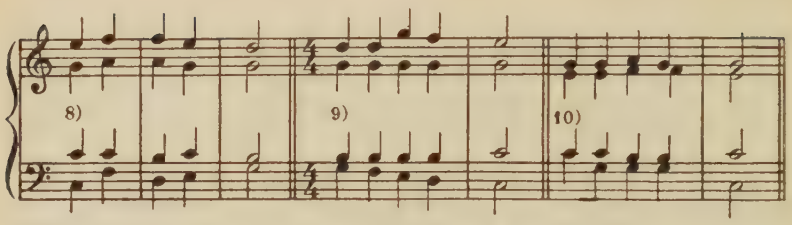
$\frac{4}{4}$ I | VII⁷ I II_2^7 V | I – – ‖ $\frac{2}{4}$ I | II_2^7 VII_3^7 | V VII_2^7 | I_1 V_2 | I ‖

$\frac{3}{4}$ I | II_3^7 VII⁷ V_1^7 | I – ‖ $\frac{3}{4}$ I I_1 I_2 | V⁹ V⁷ V⁷ | I – – ‖

(change the arrangement of the second V⁷)

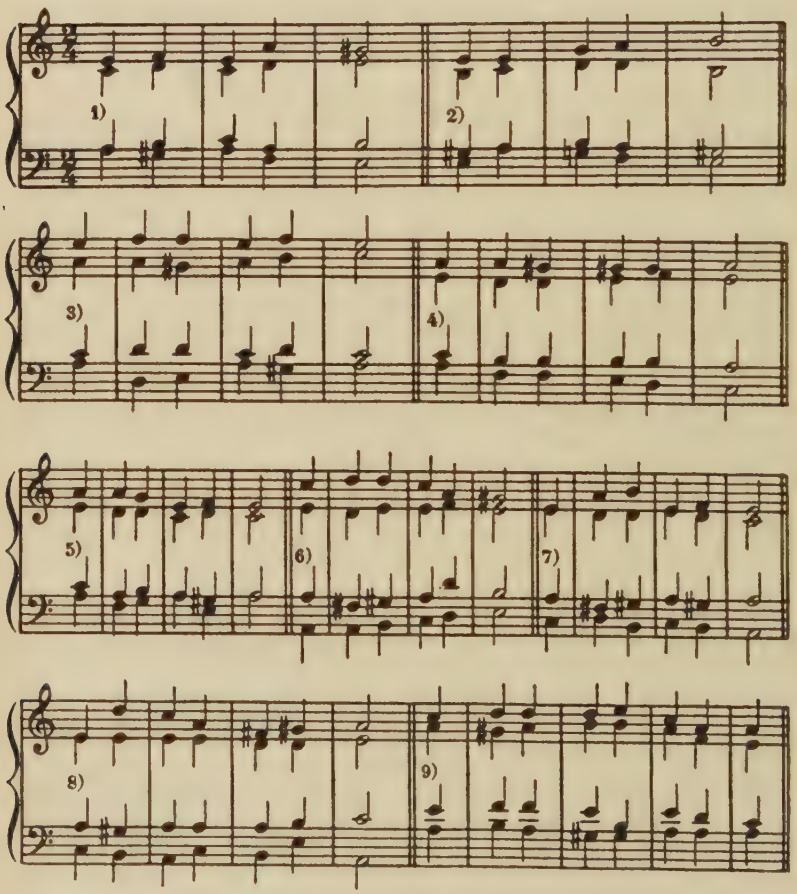
Dictation: *Study in Differentiation between the various chords with Dominant Function*: (V, VII, V⁷, V⁹, and VII⁷)

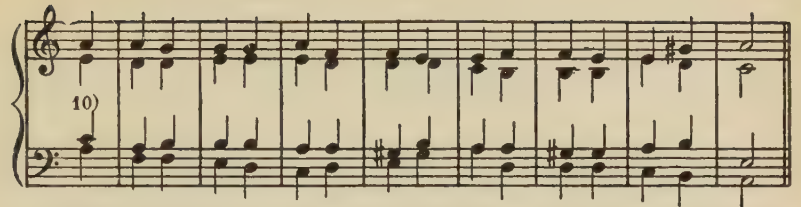




What is the objection to the usual doubling in the I in 6)?

These successions should be played both in major and minor; those following are for the minor mode only:

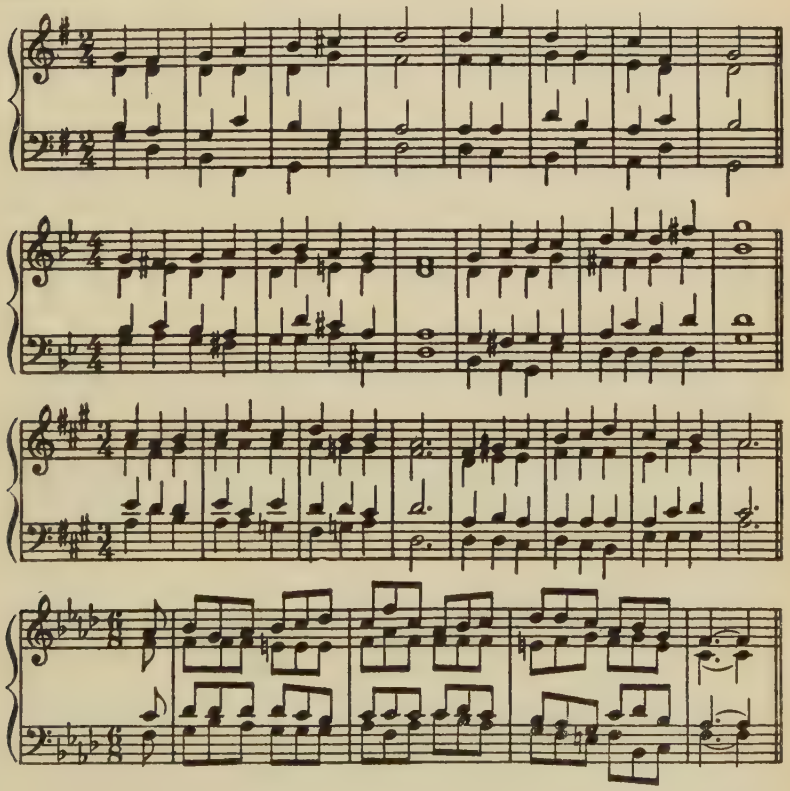


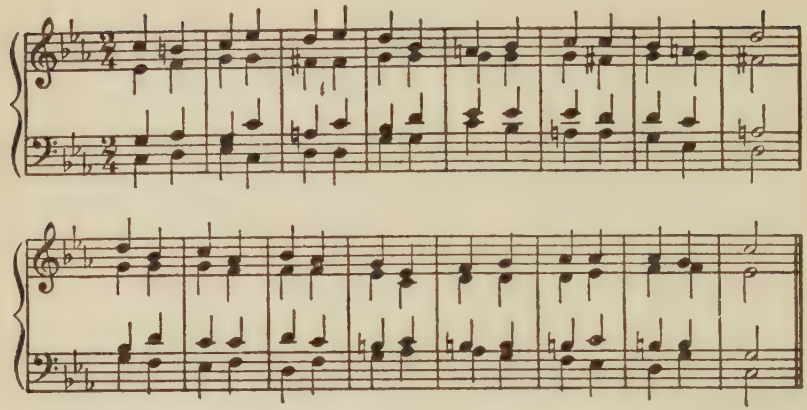


Criticize especially the succession of diminished and perfect fifths in such examples as 7)—(the outer voices in the cadence).

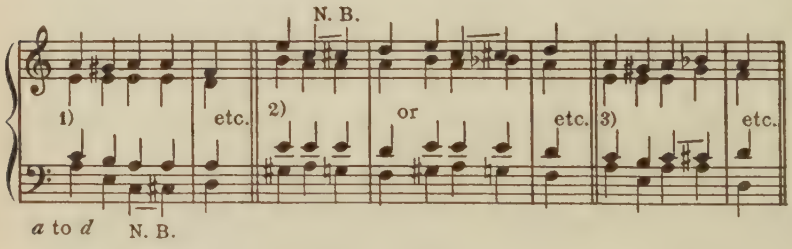
Exercises for Dictation: (V⁹ and VII⁷)

These exercises involve modulation to the Dominant or Subdominant keys and back again, through a chord which is common to both keys. Some have also the modulation to the relative minor or major; others, no modulation whatever:

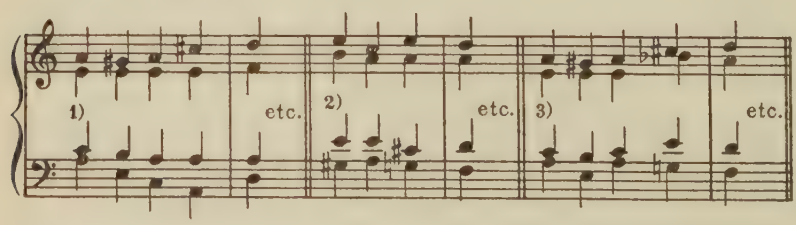




Using the conventional 'harmonic' minor mode, how many chords, of any type, are common to a tonality and the tonality a fifth above (Dominant) and below (Subdominant)? Note that the scale-3d in any minor key (a very important factor) has to be raised a half-step in order to become the leading-tone of the Subdominant key (an equally important factor in modulation). This difficulty is usually faced squarely by writers who stick to the conventional minor, and is solved in this manner:



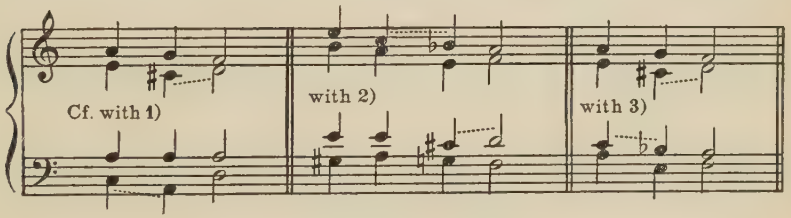
not in this manner:



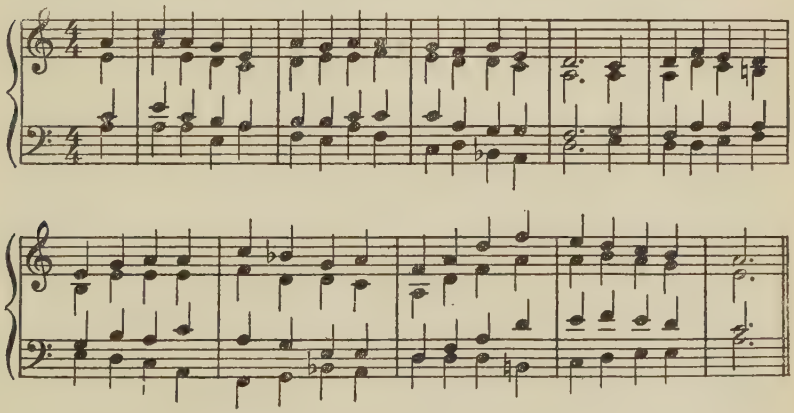
What is the objection? The phenomenon illustrated above is called a 'cross-relation.' Why?

See, in this connection, the following Bach chorales: No. 66, 2nd phrase; No. 81, 3rd and 7th phrases;—cf. with No. 113, same phrases; No. 119, 2nd, 4th and 7th phrases. Does Bach solve the difficulty of the modulation in exactly the conventional manner? Just how does he manage it?

Following Bach's freedom in employing the variable sixth and seventh scale-steps, we may write c♮ in one voice and c♯ in another in the modulation we are discussing *when the* c♮ *fulfils the modal tendency to descend and the* c♯ *the tendency to ascend*:

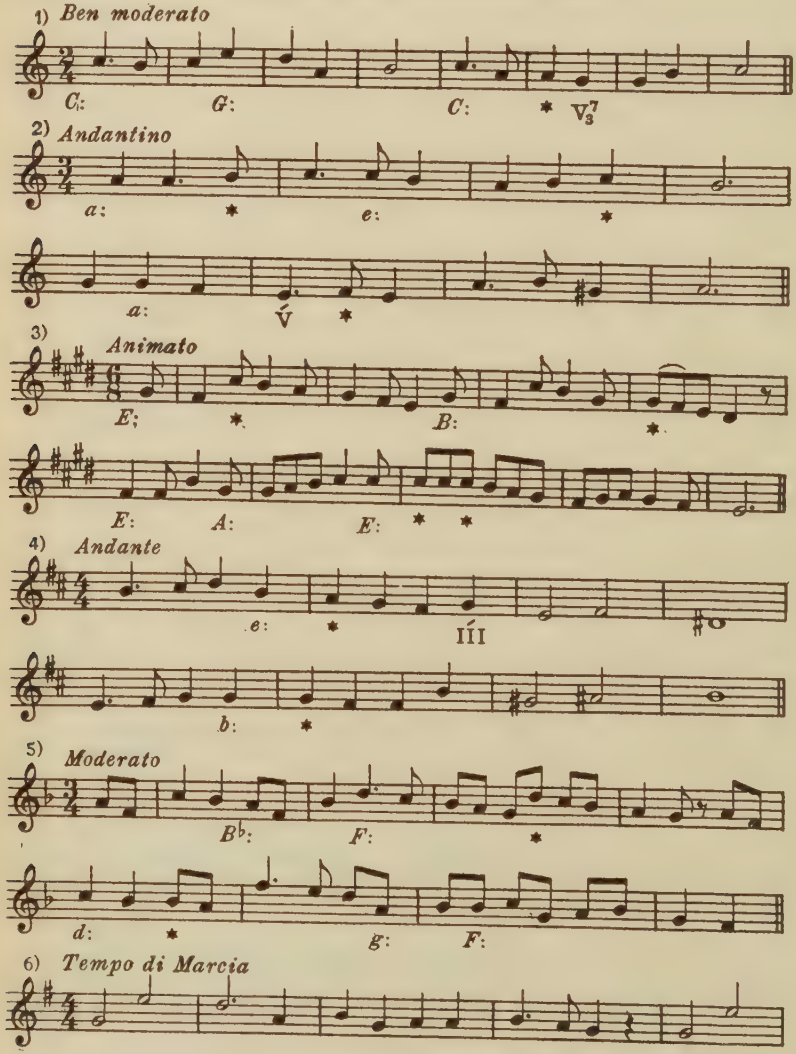


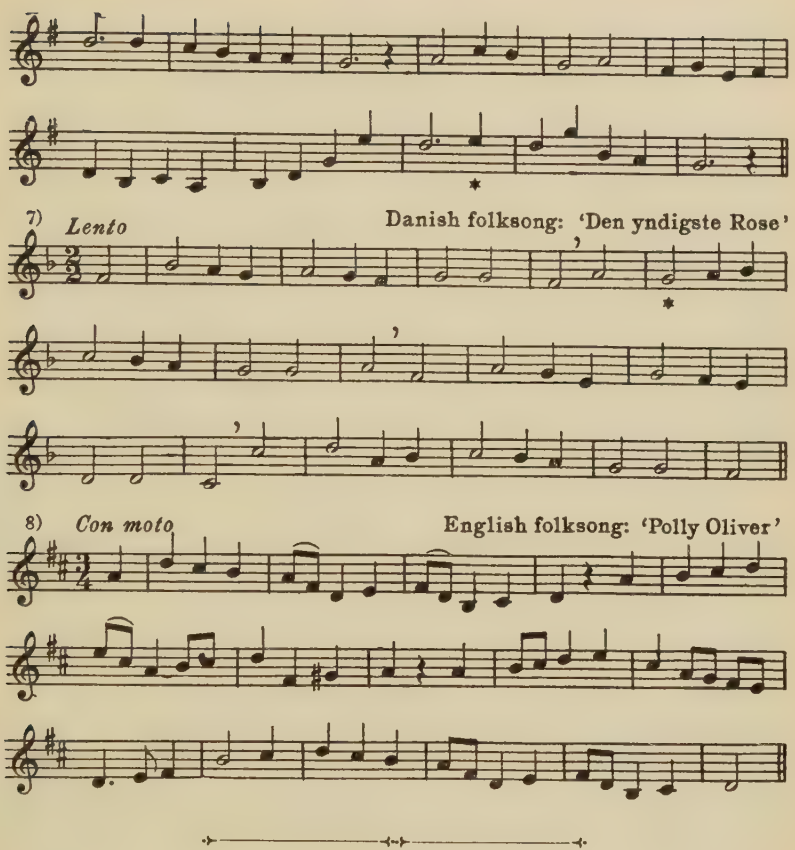
If the Aeolian minor be used exclusively, there are, of course, as many chords common to a key and its dominant or subdominant keys as in major, but the absence of an upward-tending leading-tone is always noticeable:



Melodies to be harmonized:

Certain of these involve modulation to the dominant or subdominant and return, or to the relative major or minor and return, or both, or neither. For the earlier melodies, the modulations are indicated; the colon after the key-letter is placed beneath the tone which tops the modulatory chord:





INHARMONIC OR UNESSENTIAL TONES

The ornamentation of the melodic line of any voice in four-part harmony relieves the bareness of the style. The florid element thus introduced is a matter for the exercise of good taste. Ornament, judiciously applied to a structure fundamentally strong and sound, may greatly enhance its beauty. Applied too lavishly, the effect is analogous to what in architecture is termed 'rococo.' Fat, gilded cupids, corrugated sea-shells, spiral col-

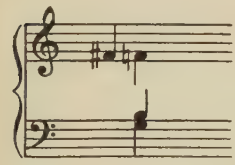
umns, and statues of swooning saints are no addition to the beauty of an otherwise well-designed cathedral. So, in the special type of music which is the subject of study in this manual, —harmony for four voices,—ornament should be applied sparingly. Too little is better than too much. If the chordal structure is well made, it will have its own proper artistic effect, —an effect of Doric simplicity. The art of Bach, as exemplified in his settings of the traditional chorales of his church, is Gothic in comparison. It is full of melodic ornament. But the analysis of the harmonic structure of his settings reveals always a sturdy ground-plan; they are solidly built, and would stand without their ornament.

The effect of harmonic writing for voices without any melodic ornamentation is, in the long run, monotonous. If there be no tone of the melody without its own block of harmony, the impression which results is similar to that produced by a dancer upon stilts: no part of the body is really free, as even the head must help maintain the balance of weight. The freedom of movement characteristic of the three lower voices in the chorales of Bach is due to his feeling exempt from the necessity of passing *directly* from one tone which is part of a chord to another which is part of the next.

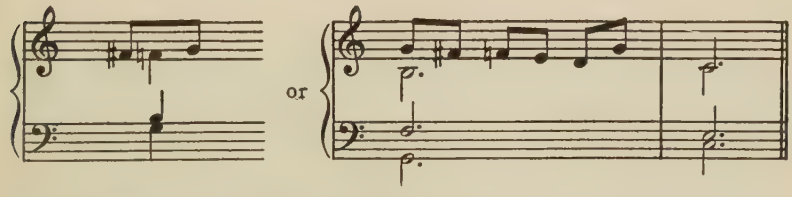
There are two principal ways in which this direct melodic movement may be avoided. In the first place, a tone, or more than one, may *intervene* between one chord-tone and another; it belongs to neither chord; it is therefore termed 'inharmonic.' To this class belong the *Passing-Tones*. On the other hand, one or more tones may be employed *in association with* the chord-tone itself, alternating with it, preceding, or following it. These also, being no part of the chord-structure, are 'inharmonic.' To

this second class belong the *Auxiliary-Tones.* Both these devices aim at achieving the effect of more movement than is actually present in the chord-successions. Their first reason for existence is to *vary the rhythm.*

But, since the tones used are inharmonic, they form a dissonance with the chord-tones. As we have pointed out previously, a dissonance demands movement, it is active, and entails a reaction in the form of consonance. Thus all inharmonic tones tend toward the *nearest* tone which is consonant with the harmony. To take an extreme case,



in *C*-major is a combination made up of three tones of the V^7, including F♮, plus a tone which does not belong: F♯. The F♯ is harshly dissonant with the F♮. It tends towards the nearest tone consonant with the harmony, which is G, or it might be F♮ if the movement in the part containing the inharmonic tone were downward in general direction:



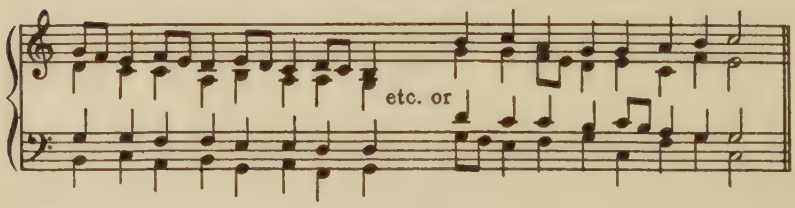
[In *diatonic* harmony, inharmonic tones may be taken from the complete series of twelve *chromatic* tones between the keynote and its octave, since they do not affect the chord-structure.]

But such a harsh dissonance as F♯ with the V^7 in *C* has an effect which we have scarcely described when we call it a variation of the rhythm, nor have we sufficiently appraised its value when we say it demands movement. In and of itself it has an intensity, a sharpness, a penetrating acidity which acts directly upon

the emotions. And so a second reason for the employment of inharmonic tones is their *intensity of emotional effect*, especially when accented; by their use we attain not only greater variety of movement but a greater range of expressiveness. They are to the dissonant seventh-chords what those are to the consonant triads. Note the poignancy of the inharmonic tones used in these chorales: No. 3, 2nd phrase,—the momentary augmented triad sound in the last measure; No. 15, throughout; No. 57, 1st and last phrases; No. 61, throughout; No. 71, 1st and 6th phrases; No. 74, second phrase. A study of the verbal texts of these chorales will reveal the mood or the word which inspired the dissonance.

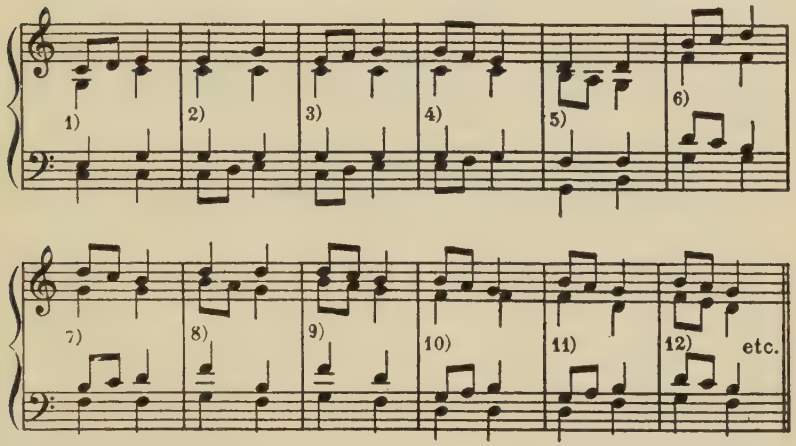
We shall first examine that type of ornamentation in which tones are inserted between two other tones belonging to the same chord or to two different chords. We have already met the simplest and least dissonant instance of this device in the 'passing seventh':

The Passing Seventh:

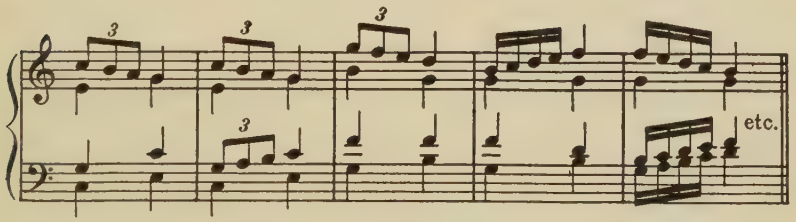


The seventh may appear in any part. It is usually symbolized by a dash before the little 7 at the upper right-hand corner of the Roman numeral: I^{-7}, II^{-7}. Not so with the ordinary passing-tone, which is simply ignored as unessential, though its use is analogous.

PASSING TONES BETWEEN TWO TONES OF THE SAME CHORD:

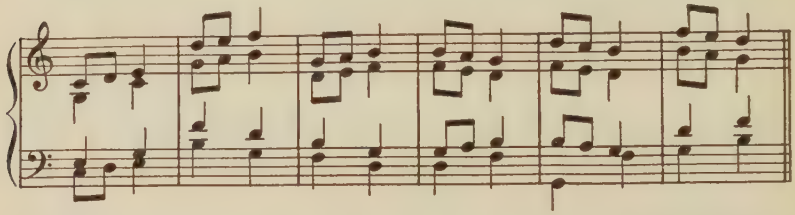


Note that the movement, in any given voice, is along the scale in the direction of the tone to be reached. Conceivably more than one passing-tone might be used if the tone to be reached were farther away than a third:



The technical problem of handling passing-tones in a single voice is simple: if the connection of the two chords involved is satisfactory without the passing-tone, *and if there are no 'hidden' fifths or octaves*, its insertion will make no difference. But when passing-tones occur in two or more voices at the same time, their management is the same as that necessary for the manipulation of *more than one melody* at once, a branch of musical technic

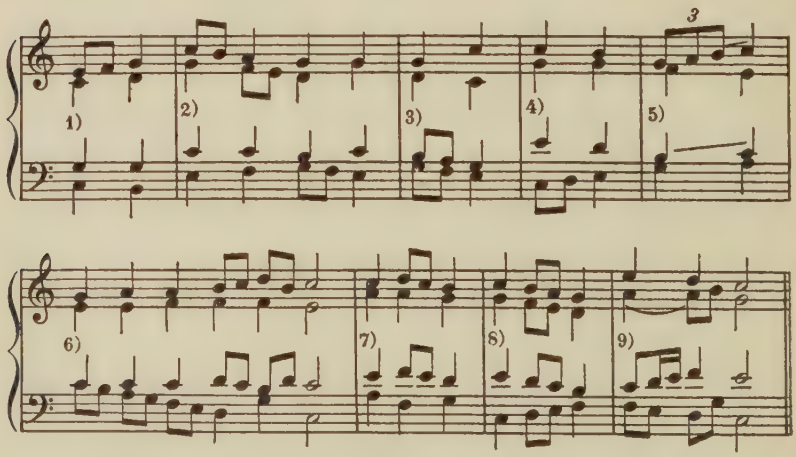
ordinarily called Counterpoint. Examine the following examples, which are all unsatisfactory:



If two voices move parallel to each other, what are the best intervals between them?—If three voices move parallel, how should they be arranged?—What parallel intervals should always be avoided?—If two voices move in contrary directions, are there any restrictions?—If two voices move parallel and a third contrary, what are the best intervals for the parallel voices?

Note that in examples 8) and 9), above, there are *parallel ninths* between Bass and Alto. Although both voices are moving melodically, the succession is admitted. See Bach chorales No. 38, final phrase; No. 111, 2nd phrase.—When more than one voice contains passing-tones, what do the unornamented voices tend to do?

Passing-Tones between two tones belonging to Different Chords

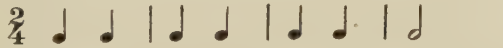


The objectionable parallel octaves in 5) are due to the fact that the original Soprano is G-C in similar motion to the Tenor, B-C, involving 'hidden octaves.' As long as no passing-tones are employed, there can be no conceivable musical objection to the sound of the two chords in succession. Purists forbid the 'hidden octaves' because, when passing-tones are inserted, actual 'parallel octaves' are revealed, and what was 'hidden' becomes, so to speak, 'discovered.' The octaves can be avoided in 5) by paralleling the Soprano triplet in the Tenor, a sixth below; nevertheless, *successions involving hidden fifths or octaves must occasionally be rewritten if passing-tones are to be introduced.*

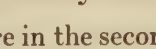
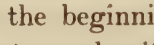
The passing-tones as hitherto presented are all *unaccented*, i.e., the inharmonic tones occur between the beats of the metre.

Design: Certain of the Dictation exercises in the previous sections of this manual should now be used as a background for the application of ornament in the form of unaccented passing-tones.

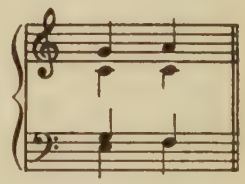
Note particularly that the moment you introduce these tones, you modify the rhythm and produce a different style of melodic pattern which may affect any or all of the four voices. This difference in style must be logically carried out, and your success in doing so will be proportionate to your sensitiveness to the element of *design*. The cardinal principles of musical design are repetition of pattern and variation of pattern. Thus, if you vary the rhythmic pattern by introducing a tone which occurs on the half-beat, the more regularly you can repeat the rhythmic figure which results without overdoing it, the more your composition, even if it be a mere harmony exercise, will have *shape*. And if at least once you vary that figure, your composition will have still more to interest the hearer. For illustration, I have, in a phrase of $\frac{2}{4}$ metre, this rhythm:



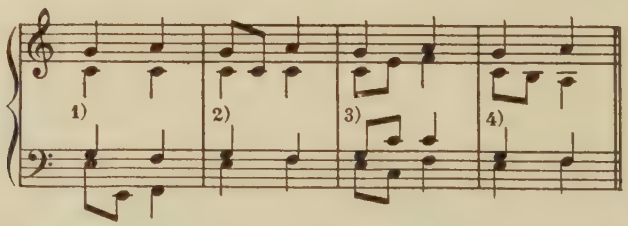
I introduce a passing-note between my first two chords, thus

creating the rhythmic figure  . If I can *repeat* this figure in the second measure, I gain the regularity of pattern which is the beginning of musical form. I have only three measures to work with, since my fourth is the terminus of the cadence. Therefore, if I can *vary* the figure in the third measure by the introduction of another note on the second half of the second beat  , or by, so to speak, turning my first figure around, making the quarter-note come first and the two eighths second, thus: , I shall be doing about all that can be done in three measures:

Occasionally rhythmic movement is desired at a point where the chord-succession does not permit the insertion of a passing-tone:

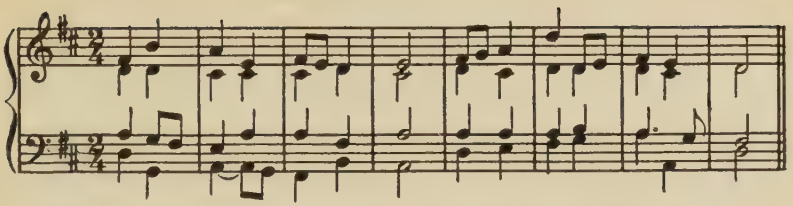


In such cases, the following modifications of the rhythm may be resorted to:



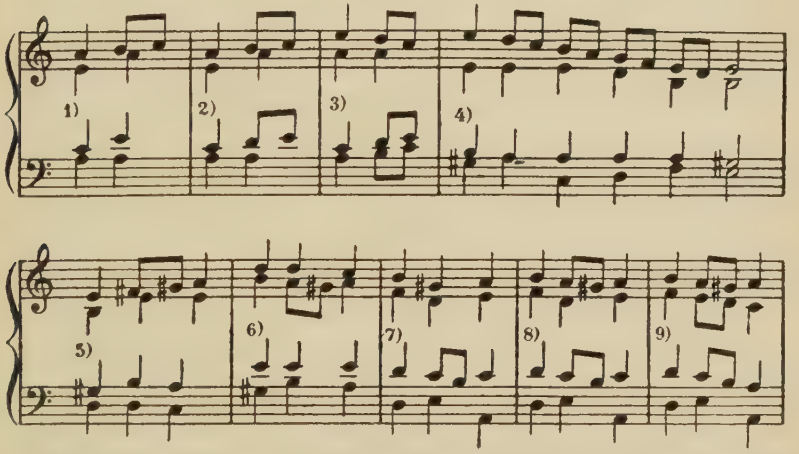
Analyze exactly what occurs in each of the four cases.

The exercise which follows is a modification of one that occurs on p. 112. Compare it carefully with the earlier version.



Exercise: *Choose at least ten other exercises and introduce unaccented passing-tones with the object of making them more interesting and expressive.*

The Accented Passing-tone



Note that the dissonance of the passing-tone is far more prominent when the tone occurs on the beat of the metre. In 3), 4), and 9), there are instances of the passing-tone forming a casual chord-form. Just what is the chord in each case? Would it be analyzed as having functional importance?—Would not a downward resolution of the chord-7th in 7) and 8) be preferable to the resolution given?

Exercise: *Introduce accented passing-tones into at least ten of the exercises for dictation to be found in previous sections of this manual. Observe the principles of rhythmical design.*

HARMONIC SETTINGS OF FOLKTUNES

The ability to harmonize a simple folktune so that it can be sung by four voices is a severe test of the student's craftsmanship, or of the mature composer's for that matter. The musical art of the folk is essentially melodic; it is complete without harmony. Folksongs and folkdances are intended to be performed without a chordal accompaniment. The addition of harmony to these tunes of the people is often attempted, however, because those who are accustomed to harmony in music are wont to demand it. And because it is beautiful in itself, a fine folktune is the best possible subject for the student of harmony to exercise his ingenuity upon.

The writing of piano accompaniments to folktunes is beyond the immediate province of this manual. It may be studied in the works of such masters of the art as Cecil Sharp in England, Julien Tiersot and J. B. Weckerlin in France, and Rimsky-Korsakoff in Russia.

The arrangement of folktunes for four voice-parts should be taken up by the student of harmony as soon as he has mastered the technic of the connection of triads and seventh-chords and knows what to do with passing-tones. The one principle which should be invoked to guide him in this work, and which should be engraved and engrossed in his imagination before he begins, is:

'*Let the tune be the supreme governor of the harmonic plan.*'

The following suggestions are in line with the principle just enunciated:

1) Memorize the tune; if it has words, learn them by heart when they are accessible, so as to understand better the mood of the song.

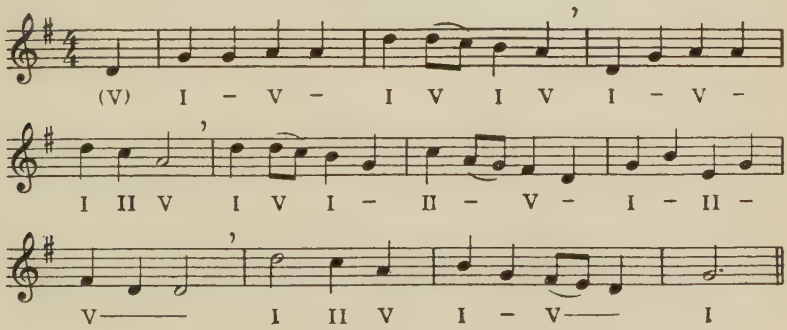
2) The phrasing of the tune determines the phrasing of the harmony, including the employment of half-cadences or full-cadences.

3) The musical scale (or mode) of the tune determines the scale of the harmony: *use no tones which are not present or implied in the tune itself.*

4) In general, the simpler the harmonic setting,—the less changes of chord-function involved,—the better.

5) Few folktunes imply modulation; when modulation is employed, it should be unmistakably indicated by the tendency of the melodic line toward a new tone-centre: 'Let the tune be the supreme governor of the harmonic plan.'

A convenient method of procedure is to arrange all chords in three classes as to function: Tonic (I), Dominant (V), and Secondary (II). Then outline the general harmony which the tune seems to demand. We shall take for example the English folksong 'Oh! No, John,' which tells the tale of a lady whose father, a sea-captain, left her at home with the parting adjuration always to answer 'No.' Her lover is repulsed by this incomprehensible 'No' till he learns to word his plea so that 'No' means consent. The rough sketch of the harmony is indicated; the commas indicate the phrasing.

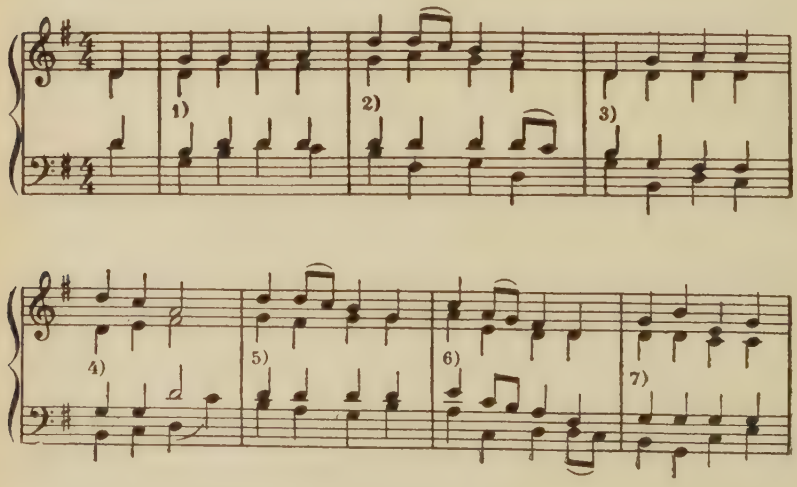


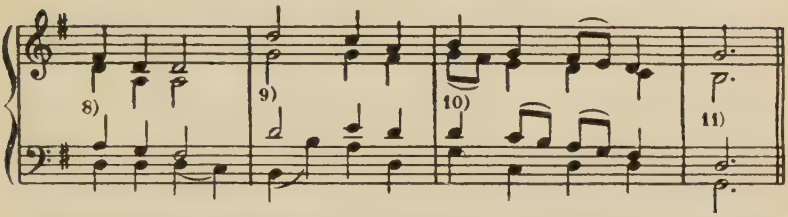
It may seem an amazing statement that all harmonic settings can be planned so simply, but it should be remembered that I means 'Tonic Class' chord (including VI as deceptive resolution of V and possibly III as incomplete tonic-seventh), that V includes VII as dominant, and that II stands for any chord which may precede the dominant,—which is 'out beyond V' in the tonality.

The harmonization in detail should take account of the spirit of the song, and of individual words if repeated in several verses. In this song the last phrase is a refrain, included in each verse, the words being 'Oh! No, John, No, John, No, John, No!' Observe that the eighth-notes, wherever they occur, are slurred, i.e., usually sung to one syllable of the text. (Why is this important for the harmony?)

A detailed setting for four voices might run as follows:

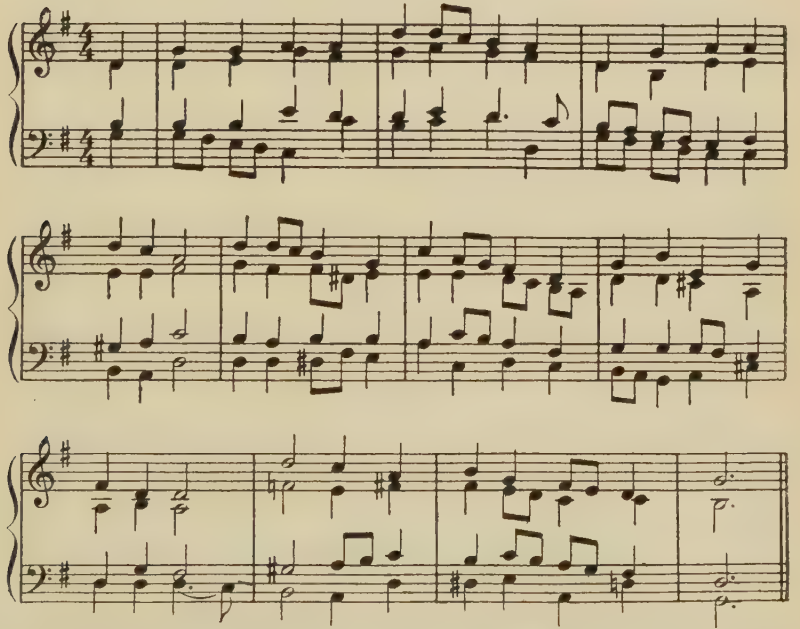
'*Oh! No, John*'





The introductory dominant note is usually not harmonized. The first passing-note in the Tenor gives an effect of *imitation* of the Soprano, always an interesting device. Upward leaps of the Bass on a slurred syllable, as in measures 4 and 9, are always *heard,* and usually effective. Cf. the use of V_1 in measure 2 with V_2 in measure 5. The inharmonic c in measure 8 is an accented passing-tone, possible because the harmony remains V. Substitute f♯ for it and note the effect on the rhythm. The only seventh-chord except V^7 to occur on a regular beat of the metre comes at the first emphatic 'No' of the refrain, (measure 9)

Compare the following version:

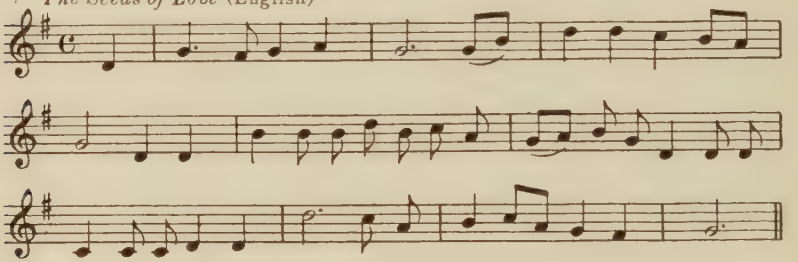


Does this setting observe the principle of letting the tune be the supreme governor of the harmonic plan?

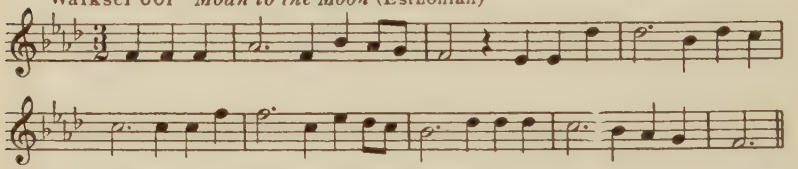
Memorize the following folktunes, look up the words, and make original harmonic settings for four voices:

[It should be noted that when the tune outlines a chord, the harmony *may* be that of the chord outlined, in which case the lower voices adjust themselves as gracefully as the composer's technic permits. Inharmonic tones may be introduced at such points, as in measure 8 of the first version of *'Oh! No, John.'*]

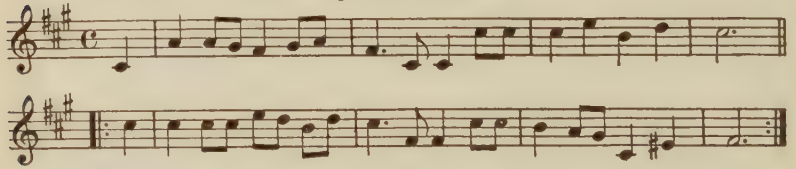
The Seeds of Love (English)



'Waiksel ööl' *Moan to the Moon* (Esthonian)

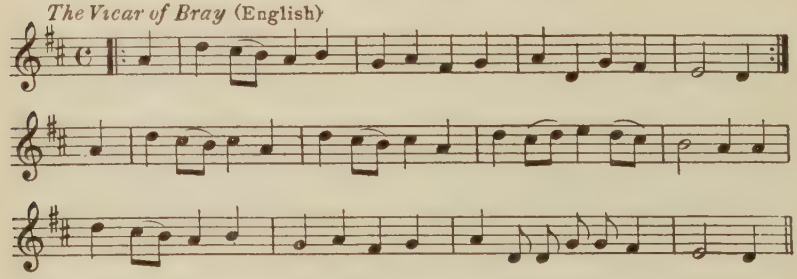


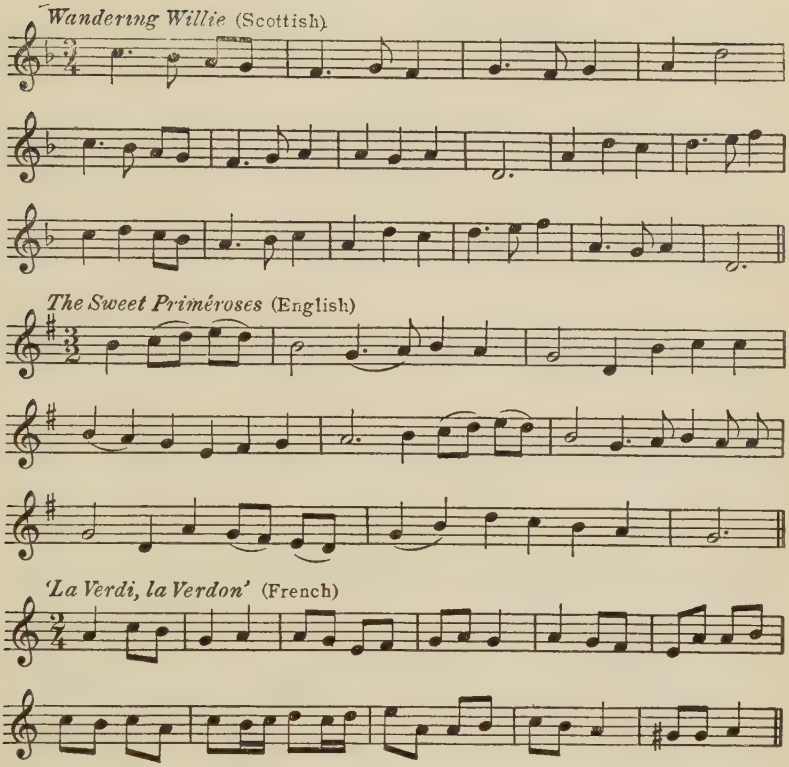
'Ruusu laaksossa' *The Lovely Rose* (Finnish)



The harmonization of a literal 'repeat' should be varied.

The Vicar of Bray (English)





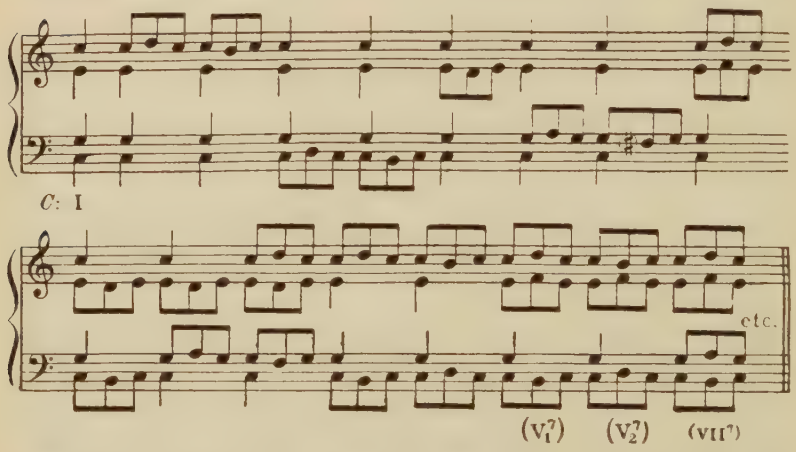
OTHER INHARMONIC TONES

The essential thing in the employment of the passing-tone, whether accented or unaccented, is the directional tendency of that inharmonic tone *from* one tone which is a regular harmonic member in good standing *to* another. It occurs in the course of a melodic line up or down.

By contrast, the type of inharmonic tone which we are next to examine occurs in the course of a movement *away from and back to a single chord-tone.* It is purely an embellishment of that tone. No harmonic movement is implied, but neither is

there any real melodic movement. This tone is termed an 'auxiliary' or a 'neighbor' of the tone from which it departs and to which it returns. Thus the I in *C* major may be embellished without harmonic movement till the embellishment in three or four voices at the same time, introduces casual chord-forms other than the original:

AUXILIARY TONES



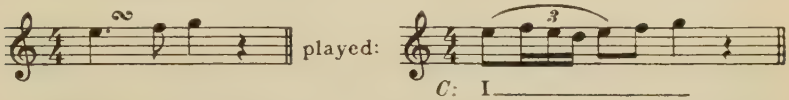
Keyboard Exercise: Change the signature to three flats, making the triad the I in *c*. Try the Aeolian, the Harmonic, and the Ascending Melodic Minor. Which of these will not work in the illustrations which it affects? Why not?

Change the signature to one flat, making the chord the V in *F*. Do any alterations of the whole-step intervals to those of half-step now seem suitable? Such alterations would be called 'chromatic.' Would they affect the harmony?

Change the signature to four flats, and the E♭ to E♮ (V́ in *f*, Harmonic Minor mode). Try again the alteration of whole-steps to half-steps and the reverse.

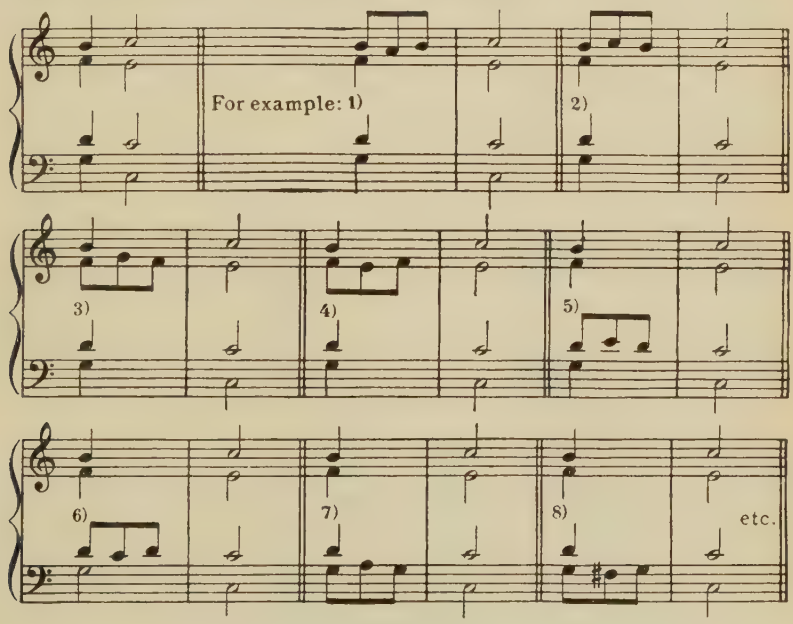
Similarly try the chord as IV in G and g; as II in $B\flat$; as VI in $E\flat$ or E, and in $e\flat$ or e; and as III in A or $A\flat$.

In the illustrations as given, at least *three* tones in succession occur in the embellished part: 1) the chord-tone, 2) the tone a whole- or half-step above or below, and 3) *the same chord-tone returned to.* This device of the 'step away' followed by the 'step back' is the essential thing in the type of melodic figuration under discussion. The Mordent (𝆞) the Inverted Mordent (𝆝), the Trill, and the Turn or Gruppetto are all ornaments based on the use of the upper or lower neighboring-note or both. For example:—



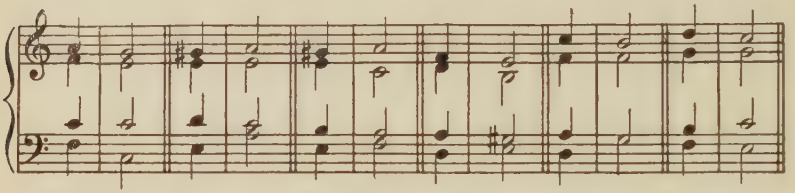
If the harmony were I in C it is obvious that first F and then D under the slur would be inharmonic tones, and, since each returns to E, each is an 'auxiliary.' Can the principle of the auxiliary or neighboring-note be applied to melody alone?

Experiment at the keyboard with the following chord-successions, introducing both upper and lower neighbor in connection with each tone of the *first* chord only:



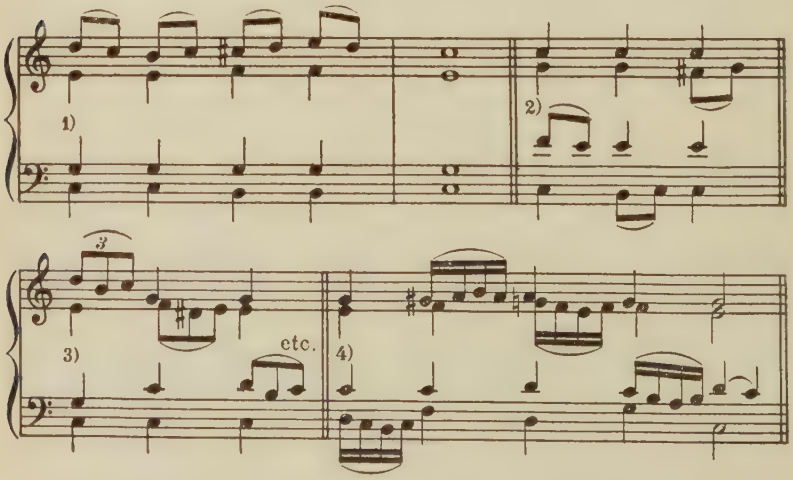
Which embellishment of the Soprano—1) or 2),—the Alto—3) or 4),—the Tenor—5) or 6),—and the Bass—7) or 8),—is preferable?—Why?—What do you conclude as to the *choice* of upper or lower neighbor with respect to the subsequent direction of melodic movement?—Does it matter as much when the subsequent movement is harmonic?—7) and 8).—Do you object to the use of F♯ with F♮ in 8)?

Try also:



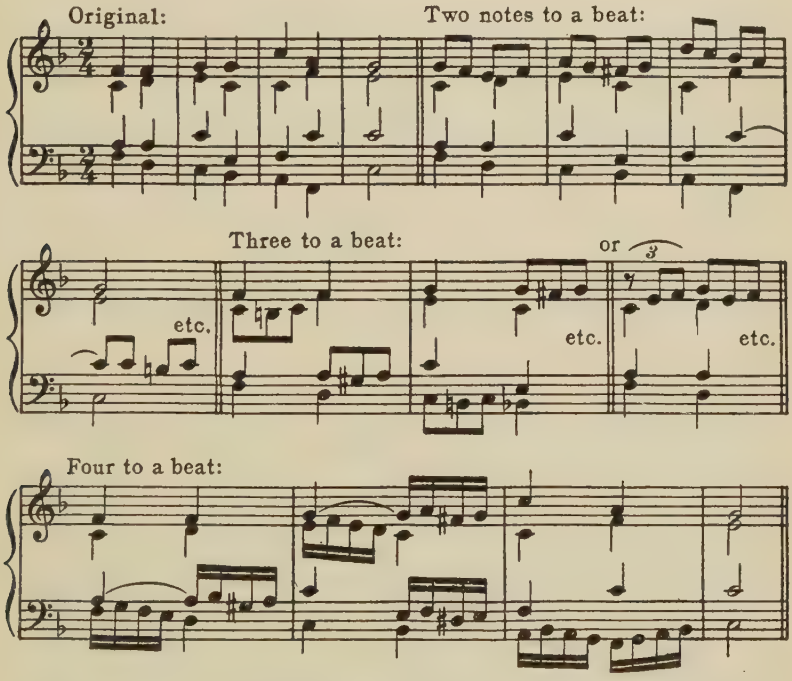
The use of the complete device, the movement to the tone or half-tone above or below the chord-tone, forthwith returning, is somewhat old-fashioned. Nowadays our 'neighbors' move away or fail to come back, or else we awake some fine morning to find a new set of them, arrived without warning. Musically, this latter experience receives the name of '*Appoggiatura*,' literally 'a note which leans' upon the chord-tone. Technically it is an unprepared neighboring-tone, i.e., *not* preceded by the chord-tone which it embellishes.

The Appoggiatura:

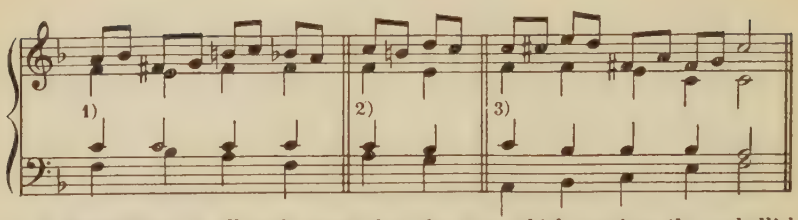


In 1) and 2) the appoggiatura is simple. In 3) both upper and lower neighboring-tones are used unprepared. In 4) an appoggiatura *begins* the ornamental figure, which is continued by passing to and back from the opposite auxiliary. The variety of such embellishments is considerable and the technic of handling them is simple as long as the true chord-tone may be clearly identified.

Exercise. Experiment with the *subdivision of the beat* by means of auxiliary notes applied to any previous Dictation exercise, in this manner:



Passing tones and ties may be introduced at discretion. It is advisable to embellish the Soprano first, making a second version in which the subdivision of the beat is introduced in the other voices. The auxiliary tone may skip, provided the contour of the melodic line is logical:

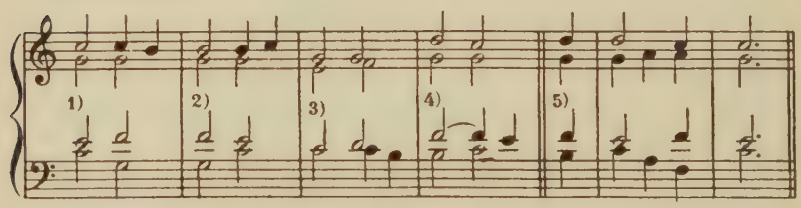


It is sufficient, in all such cases, that the tone which receives the embellishment be present, and its connection with the succeeding chord-tone satisfactory. In 1) the true Soprano is clearly A-G-C-A; in 2) it is C-C; in 3), C-D-G-G-C; though G itself does not occur in the third chord, its presence is implied as part of the V^7 harmony.

The auxiliary-tone and the appoggiatura are rare in the Bach chorales, though the effect of the appoggiatura is often gained by employing an accented passing-tone. See No. 3, 2nd phrase; No. 35, 5th and 6th phrases; No. 63, 2nd phrase; No. 118, conventional embellishment of 2nd cadence; No. 209, *triple* appoggiatura in 1st phrase: *Analyze this chorale throughout for unessential tones.*

When a note which forms an appoggiatura with one chord is present in the same voice as a regular member of the previous chord, it is called a retard or 'suspension.' The principle is simple:

SUSPENSION



In 1) and 3) the C of Soprano or Tenor is retarded or held in suspense and becomes inharmonic in the succeeding V^7 chord. It may be tied or not: in which case is the effect of suspension greater?—In 2) the suspended B resolves upward: in 4) the suspended F obtains likewise its normal resolution.

Having become inharmonic, the suspended tone may be made a part of any embellishment involving auxiliary-tones before resolving; moreover, its resolution may even be deferred and occur after the harmony has again changed, as in 5).

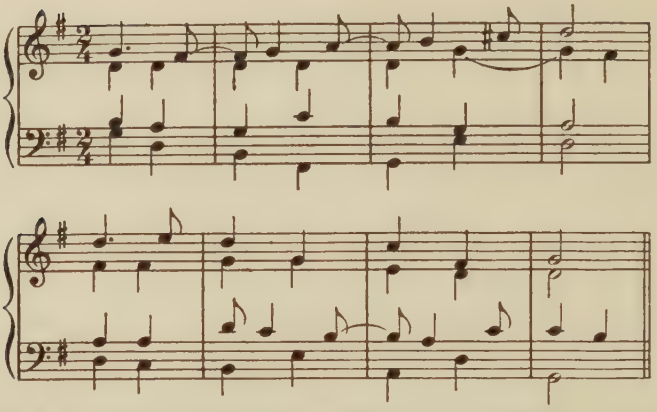
The suspension is such a frequent device with Bach that it may be studied in practically all its manifestations in the chorales. Examine the technic of No. 25, 2nd phrase; No. 26, 2nd, 3rd, and 7th phrases; No. 27, final phrase; No. 30, final phrase; No. 34 throughout; No. 38, 7th phrase; No. 39, final phrase, the suspension in Alto; No. 168 throughout; also Nos. 171, 180, 183, 187, 193, 219, 238. Note in the 1st phrase of 219 that parallel fifths would occur between Tenor and Alto were it not for the suspension. Are those fifths in the chord-succession?

In general, what is the relation of the note retarded or suspended to the metre: does it, as inharmonic tone, come on the beat or not?—What of the tone which resolves it, from the same standpoint?—Is the rhythmic effect of suspension to be avoided when the resulting chord-effect is *consonant?*—The presence of the suspended note in the same voice, as a regular member of the previous chord, is sometimes called its 'preparation.' Should the preparation be longer or shorter in duration than the suspension?—May it be of equal length?—Do you consider that a suspension conceals the unsatisfactory effect of parallel perfect fifths or octaves?—Does Bach?—Does he ever place the tone upon which a suspension resolves in another voice (either at the unison or the octave) simultaneously with the suspension itself?—If so, do you observe any special craft in the handling of that tone?—Does Bach ever suspend a passing-tone which could not be considered as part of the preparatory chord?—Does he ever resolve to a passing-tone?—To an auxiliary?—Find instances of these phenomena and study their technic. If suspensions occur in two or three voices at once, is the contrapuntal handling the same as that for simultaneous passing-tones?—Granted that the conditions of the definition of a suspension be observed, may there otherwise be perfect freedom in the melodic movement of the parts, both in the preparatory chord and in that which contains the resolution?

Keyboard Harmony: Introduce suspensions in the following chord-successions. In each case, the suspended tone or tones should form part of the first chord and be inharmonic in the second, resolving within the latter.

$$\left\| V_2^7 — \widehat{I} \right\| I — \widehat{VII^7} \left\| V^9 — \widehat{I} \right\| II_1 — \widehat{I_2} \left\| I_1 — II^7 \right\| IV^7 — \widehat{V} \left\| III^7 — \widehat{IV} \right\|$$

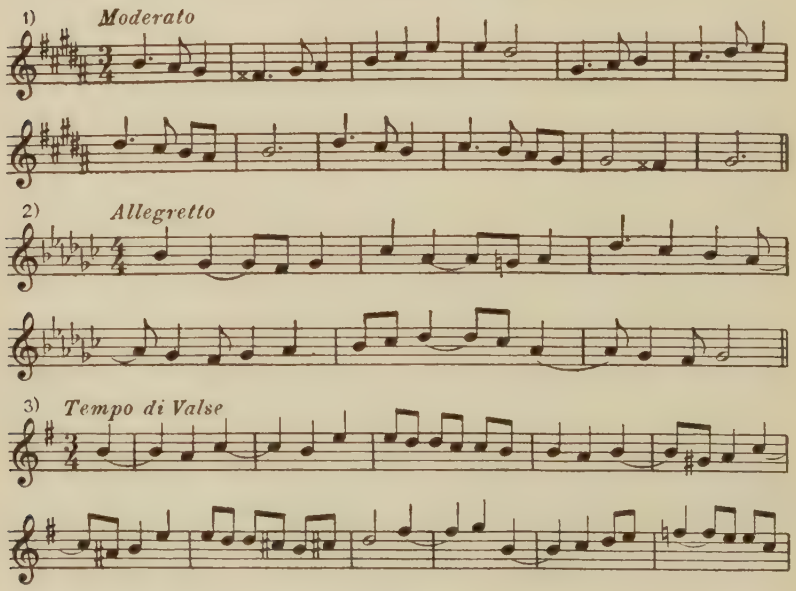
Exercise: Experiment with the introduction of suspensions into previous dictation exercises. The following version of an exercise on p. 149 will serve as an example:

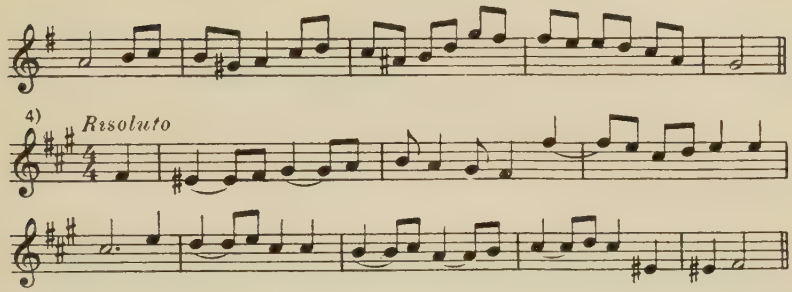


What is the effect of continued suspension on the rhythm when the notes are tied?—Exactly what takes place in the 6th measure, as compared with the original?—What is the reason for the rhythmic treatment of measures 6 and 7?

Melodies to be harmonized:

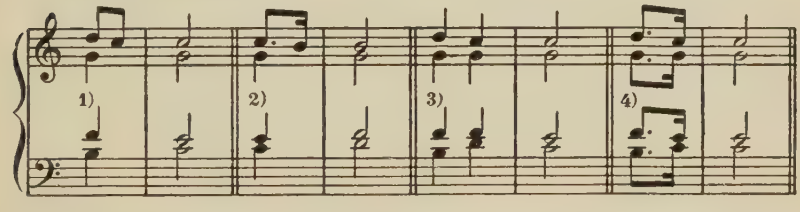
Introduce as many suspensions as possible.





The opposite process to suspension, when one or more tones of a chord which is to follow appear as inharmonic tones in the previous chord, is called 'anticipation.'

ANTICIPATION

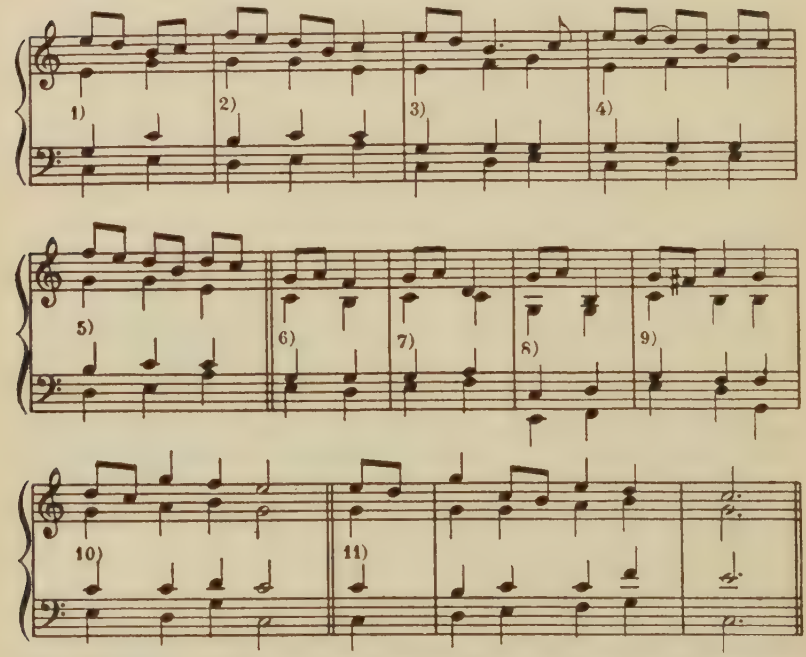


Examine the following Bach chorales: No. 25, 4th phrase; No. 194, 2nd and final phrases; No. 235, 3rd phrase; No. 241 throughout. With which part of the phrase is the device of anticipation almost exclusively identified?—What is the relative duration of the anticipatory tone or tones?—In which voice does a single anticipatory tone usually occur?—In 4), above, all the tones of the succeeding chord are anticipated, forming an 'anticipatory chord.' In 3) the anticipation occurs on a beat: if there were not a repetition of the V harmony would the effect be musical?—Is the device of anticipation primarily dissonant, rhythmic, or merely ornamental in effect?

The complete freedom with which an inharmonic tone may be resolved is nowhere better illustrated than in the device which is sometimes termed the 'changing-tone.' This tone may belong to either type of ornamentation: it may have the directional tendency of the passing-tone or it may be a pure embellishment

like the auxiliary. In the former case, it *skips* to the auxiliary on the opposite side of the tone toward which it tends, but returns eventually to that tone; in the latter case, it *skips* the return to the chord-tone,—simply leaves it out. For illustration:

CHANGING-TONES



In 1) the changing-tone is an unaccented passing-tone; in 2), one that is accented. 3) and 4) are variants of 1); 5) of 2). Which tone is the changing-tone and what happens in each case?—In 6) to 11) the changing-tone is an auxiliary. Is it accented?—Does its 'principal tone' precede it?—Does it follow?—Is there any observable regularity in the skip?—of direction?—of interval?—of the constitution of the succeeding chord?—Would you call the second chord in 10) a II^{11} ('Two-eleven')?—Do you think 'changing-tone' a convenient designation, or do you prefer to regard these musical phenomena as irregular resolutions of passing- and auxiliary-tones?

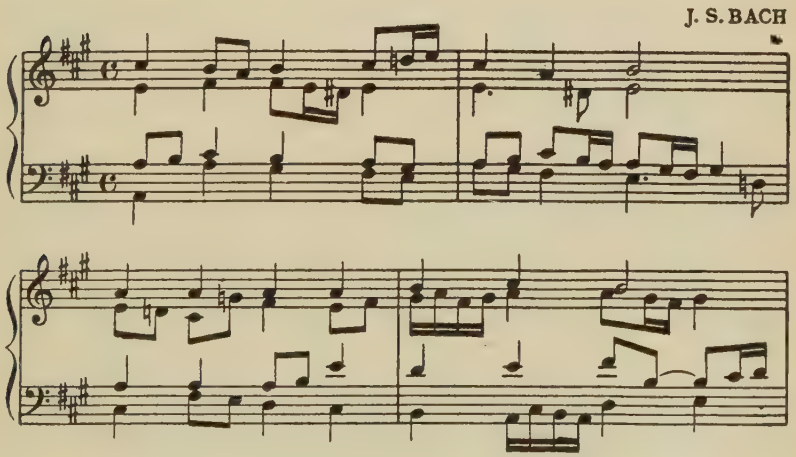
Examine the exceptional resolutions of inharmonic tones in the following chorales: No. 9, final phrase; No. 32, 2nd and final phrases; No. 35, final phrase:

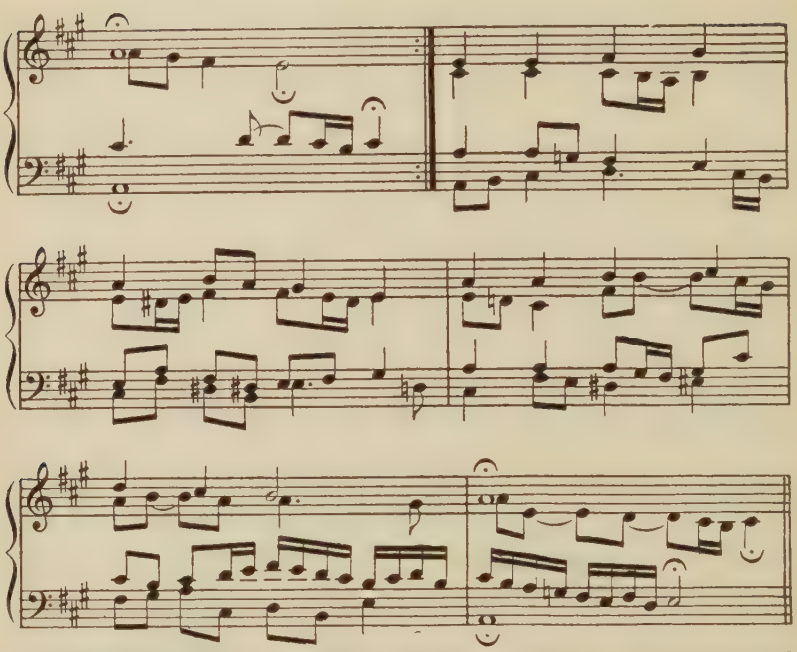
is not this a kind of anticipation?—No. 65, final phrase; No. 90, first and last phrases; No. 96, 7th phrase; No. 103, 3rd phrase; No. 234, 5th and 6th phrases. Can you find any instances which differ in character from these?

We have studied inharmonic tones from the standpoint of their relation to the harmony, but it should not be forgotten that the contrapuntal point of view is also possible. A certain voice, adopting a definite type of movement, such as two notes against one of the melody, has to be treated with consistency as an individual melodic line. The exact rhythm of the movement need not be kept up from beginning to end; it may be relaxed at the cadences, or it may be transferred to another voice. In the chorale-settings, Bach is most apt to give this type of movement to the Bass. Study the Bass of chorales 39, 45, 152, 164, 198, 203, 220, 255, 299, 312, and 323, with constant reference to the adjustments or directional movements necessary in the other voices in order to permit the movement of the Bass.

Study all the parts in the following chorale-setting:

'Liebster Jesu, wir sind hier':

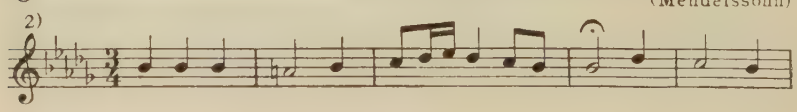


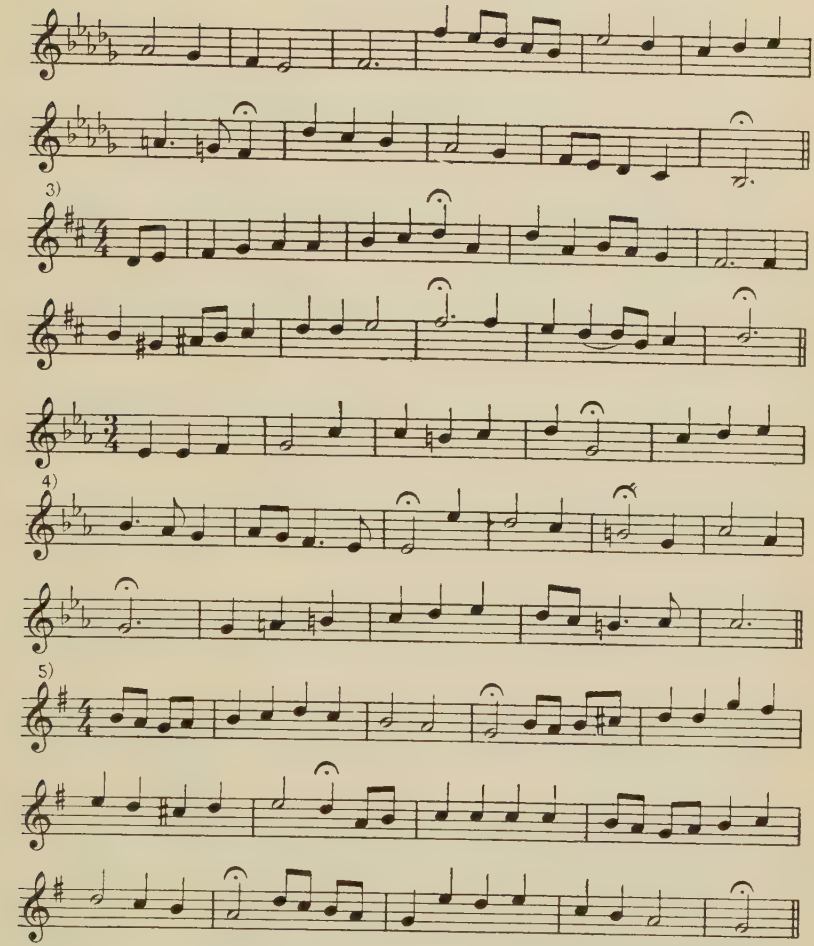


Exercise: Write out this chorale-setting in the strict style which is its basis, *i.e.*, a version which shall preserve the harmony but omit the ornament.

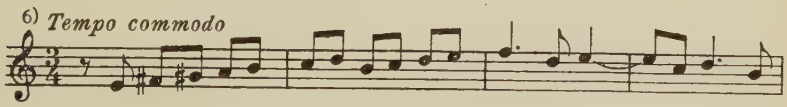
In conclusion, analyze the following chorales specifically for inharmonic tones: No's. 37, 52, 61, 66, 76, 83, 109, 221, 226, 227, 229, 344, and 371.

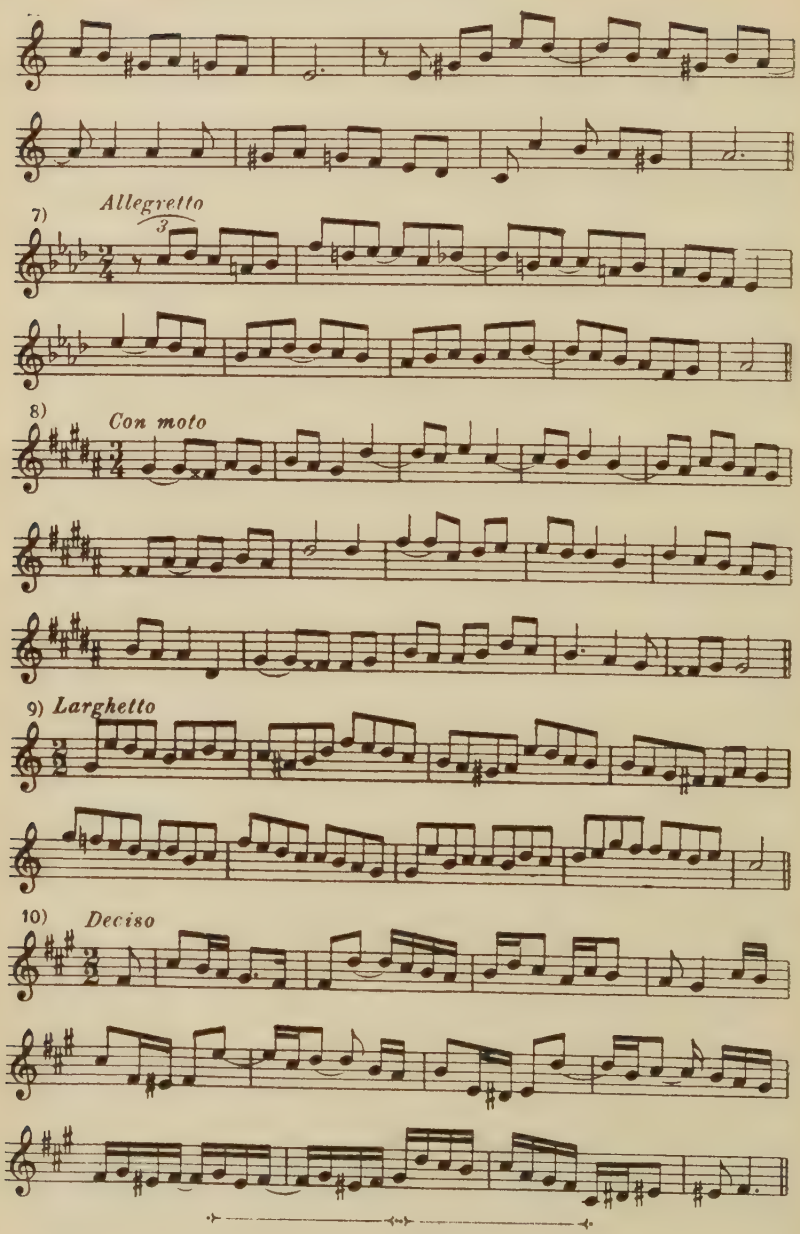
Melodies to be harmonized in the chorale style:





The following freely ornamented Sopranos should also be harmonized:




7)
Allegretto
3
8)
Con moto
9) Larghetto
10)
Deciso

COMPLETE DIATONIC MODULATION THROUGH TRIADS

The major triad C-E-G, may be I in *C;* IV in *G;* IV́ in *g;* V in *F;* V́ in *f;* VI in *e;* III in *a;* and VII in *d.*

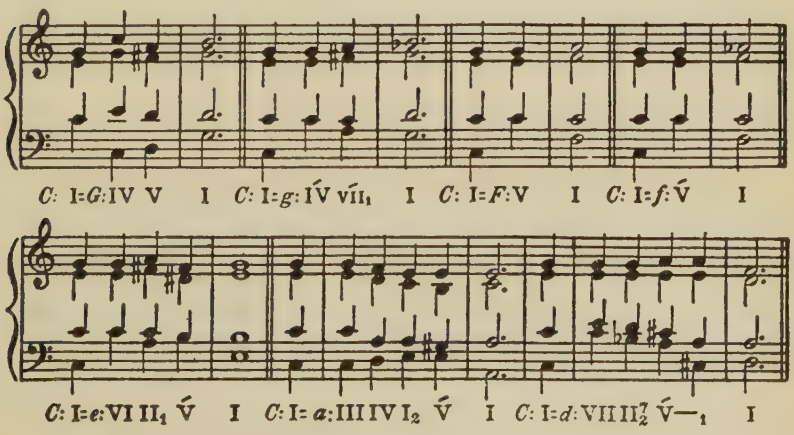
Thus any major triad may be directed toward seven tonalities when its use is strictly diatonic. [It may not actually be employed as the modulatory agent when the new key is centred on its own root, since, strictly speaking, the chord at the tone centre (the I) has to be preceded by an 'active' chord before the sense of change of key is satisfied, except at the beginning of a new phrase or sequence.]

Similarly, a minor triad may be directed toward six keys. What are they when the triad is C-E♭-G?

A diminished triad may be directed toward four keys. What are they when the triad is C-E♭-G♭?

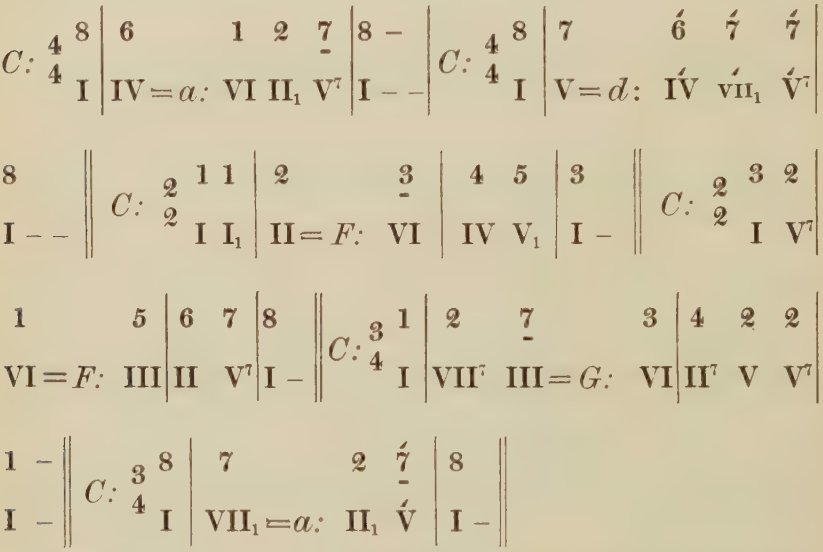
May an augmented triad be employed as a means of *diatonic* modulation?

This kind of modulation will be employed in the exercises for dictation which follow, and which take up the remoter dissonant chords. Preparation for the *hearing* of these modulations should consist of writing them out in simple formulas such as these:



Complete this series by the addition of all the other possible diatonic modulations employing triad forms.

Keyboard Harmony: Work out the following diatonic modulations;—for the purpose of study, the chord which is the modulatory agent may be repeated, with or without a difference in arrangement:


C: 4/4 8 | 6 1 2 7 | 8 – | C: 4/4 8 | 7 6́ 7́ 7́ |
I | IV = a: VI II1 V7 | I – – | I | V = d: IV́ VII1 V́7 |
8 | C: 2/2 1 1 | 2 3 | 4 5 | 3 | C: 2/2 3 2 |
I – – | I I1 | II = F: VI | IV V1 | I – | I V7 |
1 5 | 6 7 | 8 | C: 3/4 1 | 2 7 3 | 4 2 2 |
VI = F: III | II V7 | I – | I | VII7 III = G: VI | II7 V V7 |
1 – | C: 3/4 8 | 7 2 7́ | 8 |
I – | I | VII1 = a: II1 V́ | I – |

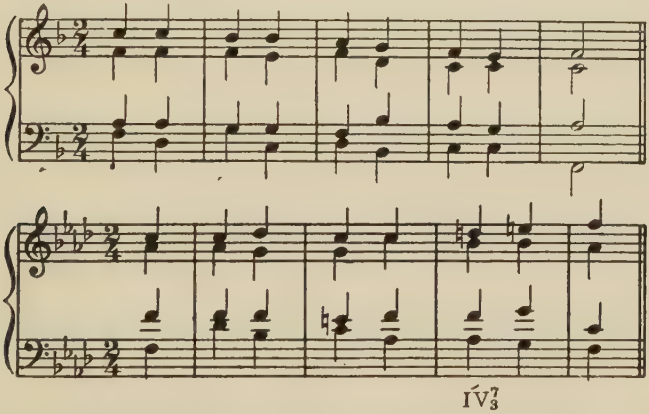
This type of exercise should be continued till the student can modulate from any key to any other which has a diatonic triad in common with the old key. Note that the new key is invariably 'confirmed' by a conclusive authentic cadence.

THE REMOTER DISSONANT CHORDS

The study of the remoter dissonant chords is carried on through exercises in dictation. The shorter of these exercises, which come at the beginning of each section, may be used for

Keyboard Harmony, the student's task being merely to transpose them to other keys than those in which they stand. The longer exercises involve modulation by means of triads common to both new and old keys. These triads are not always repeated. When they are not, they should be symbolized in whichever key seems better to fit the phrasing.

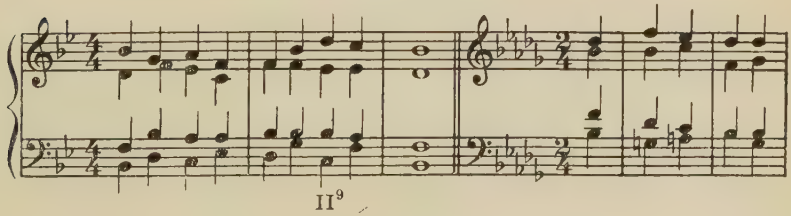
The VI⁷:

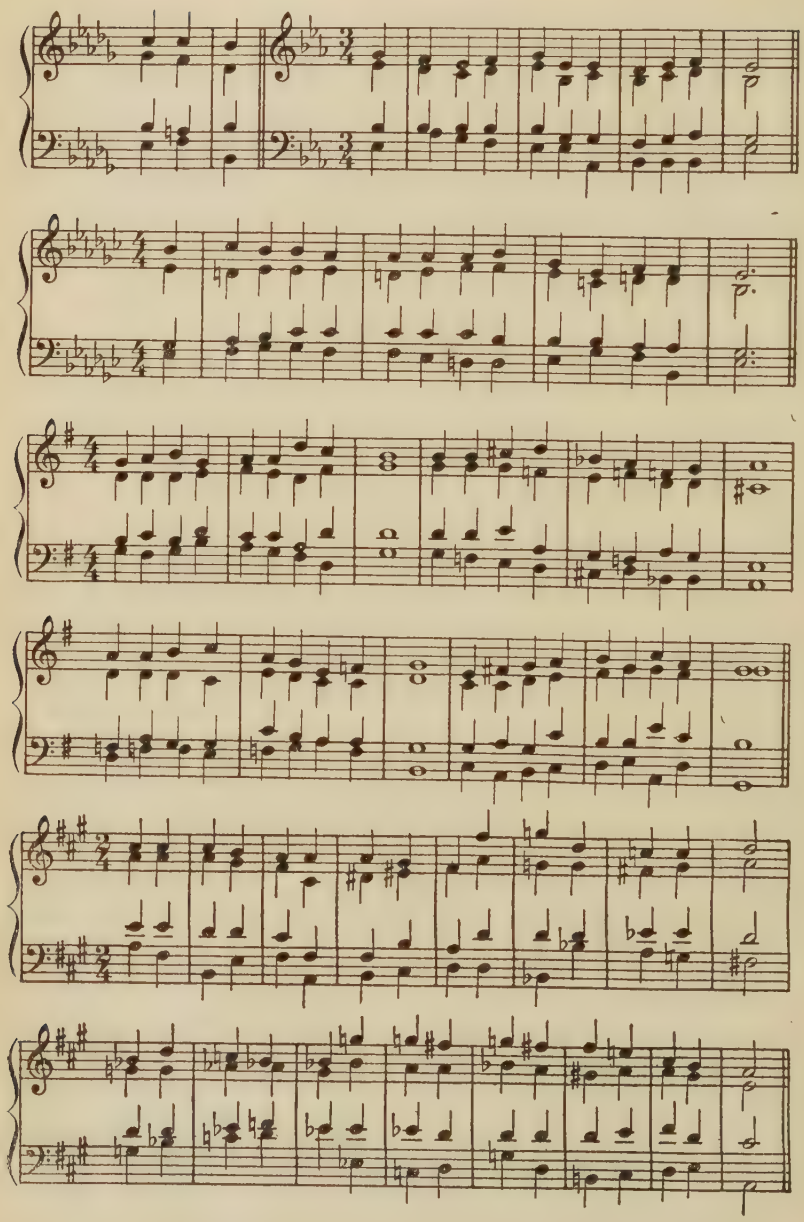


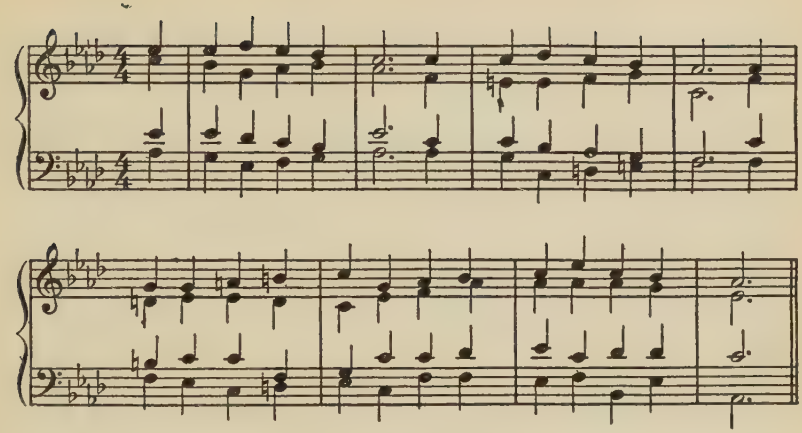
[This is the first appearance of the IV⁷₃. It is very commonly used in successions like the above as a substitute for the plain IV; purists object to the parallel major thirds which result when I₁ is followed by IV under the Soprano 5-6. If you share this objection, you may always use an inversion of IV⁷ instead of the major triad on 4. See p. 91.]

How would you describe the sound of the VI⁷ from the standpoint of the ear? Can it, like the VI, be the terminus of a deceptive cadence? Compare its function with that of the I triad.

Exercises for Dictation:

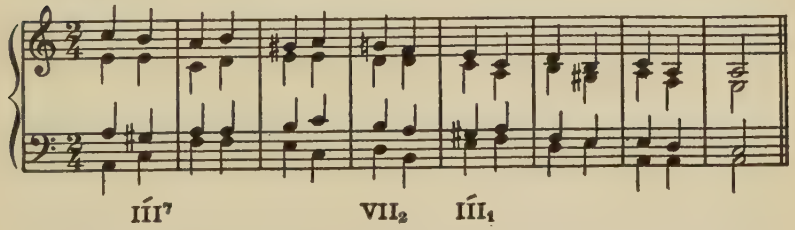






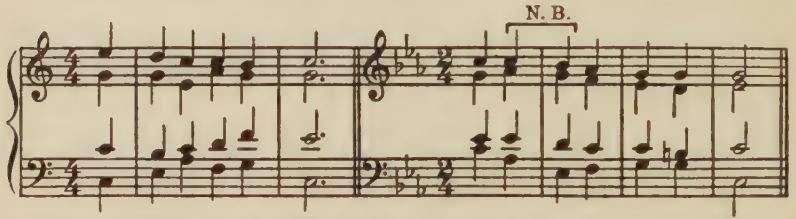
For Bach's use of the V́I in minor, see chorales No. 240, 3rd phrase, and No. 244, 5th phrase. For the V́I⁷, see No. 28, final phrase; No. 37, 1st phrase, where it occurs casually as the result of accented passing-tones; No. 91, 1st phrase; No. 115, 6th phrase, a phrase, moreover, which is remarkable for the dissonance of its anticipations; No. 221, 5th phrase, where the V́I⁷ is a modulatory agent; No. 265, 5th phrase, where it occurs in first inversion; No. 266, 1st phrase, where the chord-5th is omitted,—see also the final phrase; No. 287, 1st phrase, with a chromatic resolution; No. 296, 2nd phrase, passing-chord between two Dominants; No. 301, 2nd phrase; and No. 331, 2nd phrase, where the V́I⁷ is in second inversion. See also No's. 142, 213, and 234.

The III⁷:



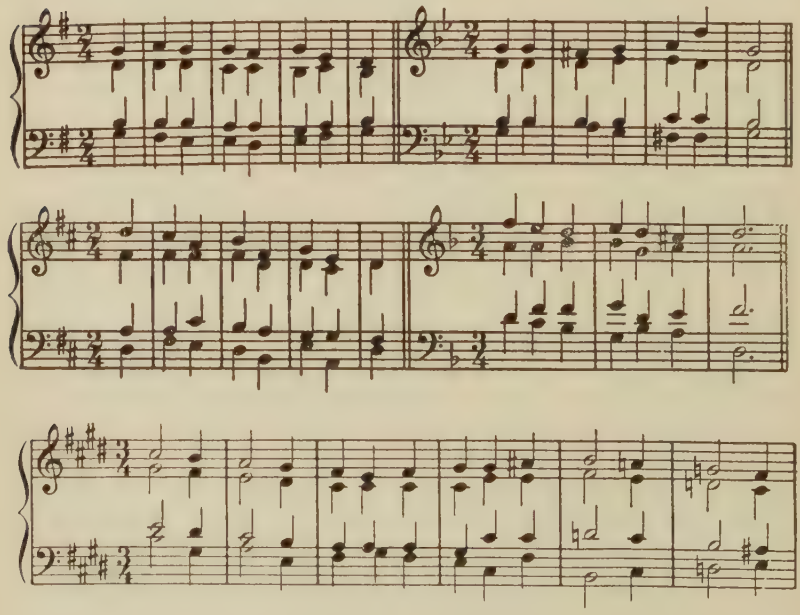
The use of the VII 'grave' and the III 'acute,' ordinarily denied to the student by writers on harmony, is exemplified by the foregoing exercise, which should prove the value of those chords, if proof were needed, in extending the scope of the minor mode.

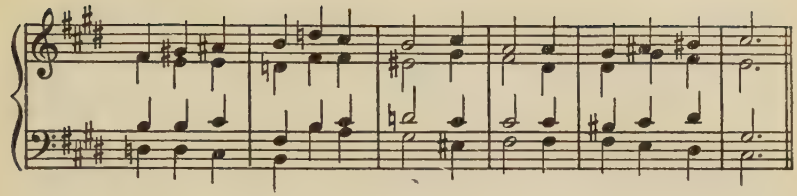
Bach uses the I$\acute{I}$I rather gingerly, as in chorale No. 73, 5th phrase. For the III^7, see No. 11, last phrase (casual); No. 50, 1st phrase; No. 92, final phrase (casual); No. 93, 1st phrase: III^{-7}; No. 95, 1st phrase, and two instances in the final phrase; No. 116, 1st phrase: two instances, one with passing 9th; No. 138, 1st phrase; No. 213, the third chord: is this in *d* or in *F*? No. 285, final phrase: the rare I$\acute{I}$I^7; No. 357, final phrase: III with passing 9th; see also No. 73, the final phrase. How would you analyze this?



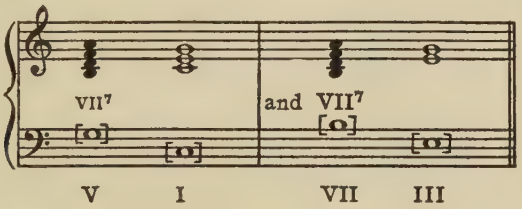
Note: The use of the III^7 'grave' after VI in minor, i.e., the addition of the seventh to the major triad on the third scale-step, is a means of avoiding any suggestion of modulation to the relative major.

Dictation: (III^7)



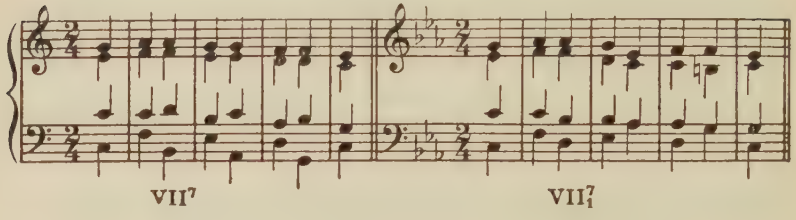


The VII⁷: As incomplete Dominant-ninth, the seventh-chord on the seventh step of the scale is already familiar. Its use as 'true Seven' means that the scale-seventh acts as a true harmonic Bass. The distinction is between

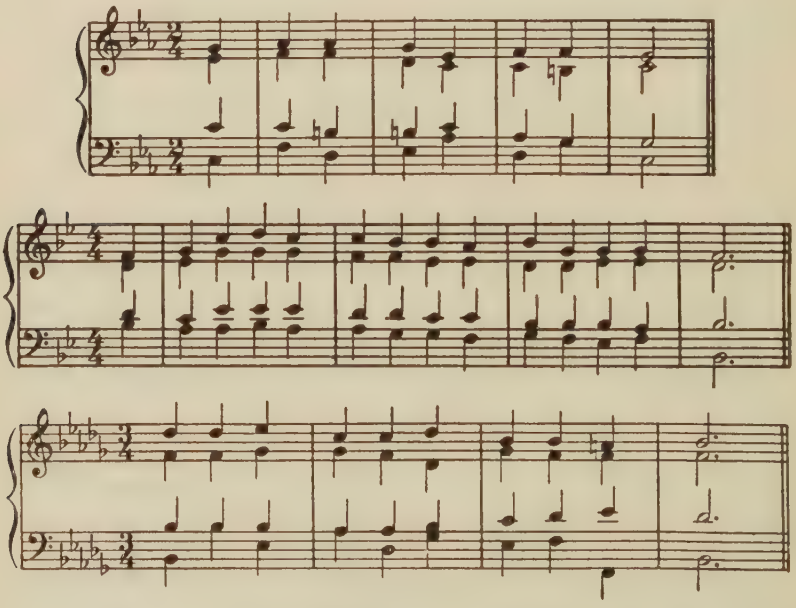


It would seem unnecessary to make this distinction of function, since any seventh-chord may resolve similarly. (See the earlier section on the sequences of dissonant chords.) But the Dominant function of the so-called 'Leading-tone Seventh' is so important, especially as a modulatory agent, that some theorists use the symbol V to express the relationship of this chord to the key-centre. We have seen it as ${}_0V^9$ ('Five-Nine-incomplete') and as ${}_0V^7$ with a 6 written underneath ('Five-Seven-incomplete with an "appoggiatura" scale-sixth'). The use of such complicated symbols seems to us uncalled-for. It is easier to think of the chord on 7 as having two functions; one of these is the most remote in the key, the other is the nearest. For this reason, and this only, we recommend the use of VII and vii to distinguish the two functions. The brief exercises which follow are intended to illustrate the more remote function:

Exercises for Dictation: (VII^7)



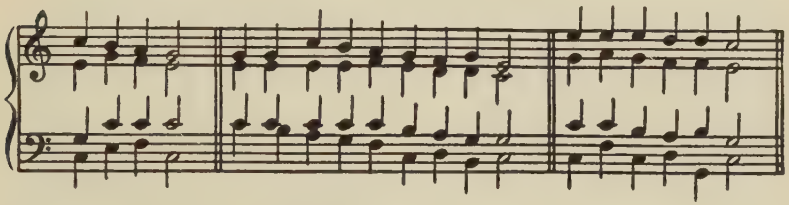
If both the VII^7 and III^7 are 'acute,' they may be used together:



Bach uses the true VII^7 in chorale No. 14, the final phrase; also in No. 70, where VII$^7_2$ appears as a casual chord-form preceding II$_1$-III as cadence-formula! Do you agree with this analysis?

The I^7: The seventh above the triad at the key-centre occurs most frequently as a passing-tone, but when it happens squarely on the beat, there is no reason for avoiding the symbol I^7. Only

the I triad in fundamental position is a 'rest' chord in diatonic harmony. Both inversions of the triad are 'active,' and so, of course, is the I^7 in all positions. Apart from sequences, the I^7 is apt to occur in such succession as these:



In the Bach chorales, the I^7 occurs almost invariably as a passing-tone or as the result of a suspension. See No. 12, the 3d measure; and No. 234, 5th phrase. The I^7 in major has the sound we have described as the 'fourth species seventh-chord.' How would you analyze this chord in No. 63, 2nd measure? in No. 104, 4th measure? in No. 123, the 4th measure from the end?

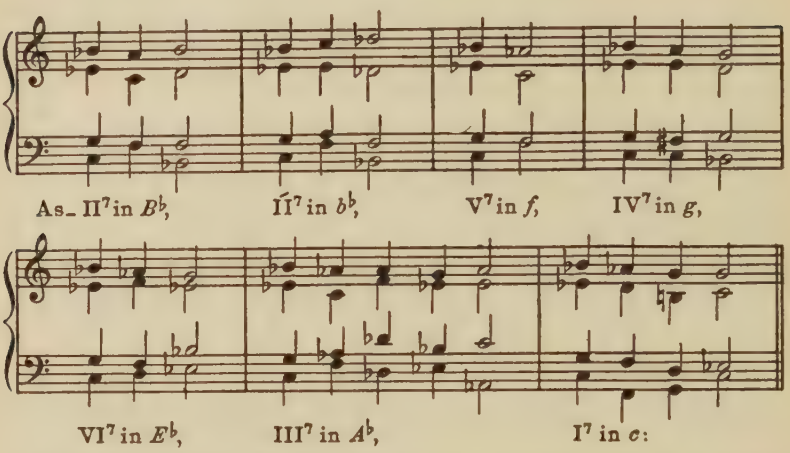
COMPLETE DIATONIC MODULATION THROUGH SEVENTH-CHORDS

The first-species seventh-chord G-B-D-F may be V^7 in *C*, $\acute{V}^7$ in *c*, $I\acute{V}^7$ in *d*, and VII^7 in *a*. Any chord of this structure may thus be employed as a modulatory agent for four keys while the harmony remains strictly diatonic. The second-species seventh-chord may be similarly employed for seven keys.

What are they when the chord is G-B♭-D-F?—How many keys are possible for the third-species seventh-chord, as G-B♭-D♭-F?—For the fourth, as G-B-D-F♯?—For the fifth (the Diminished Seventh) as G♯-B-D-F?—Are any other seventh-chord forms utilizable for *diatonic* modulation?

The following exercises for the keyboard show the diatonic resolutions of the second-species seventh C-E♭-G-B♭ into the seven possible keys:

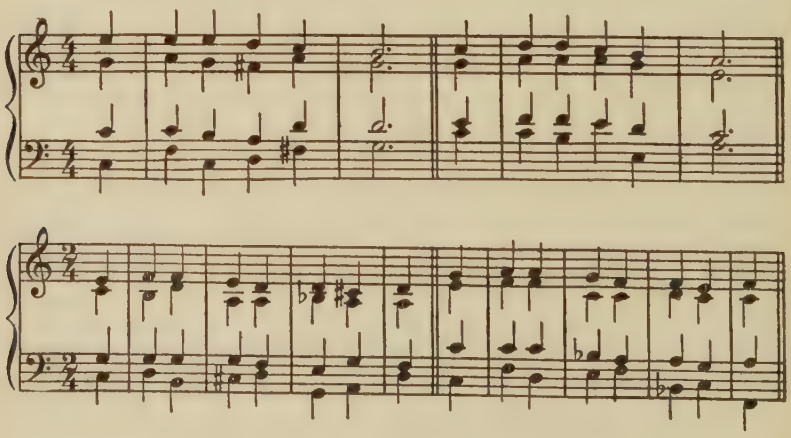
Keyboard Harmony:

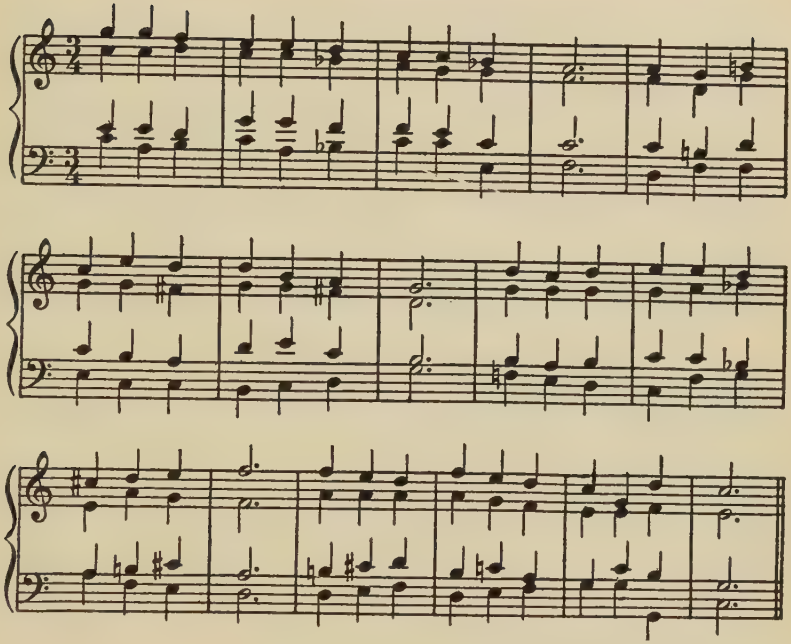


Work out similarly the contrasting resolutions of the other species of seventh-chords which may be used as modulatory agents.

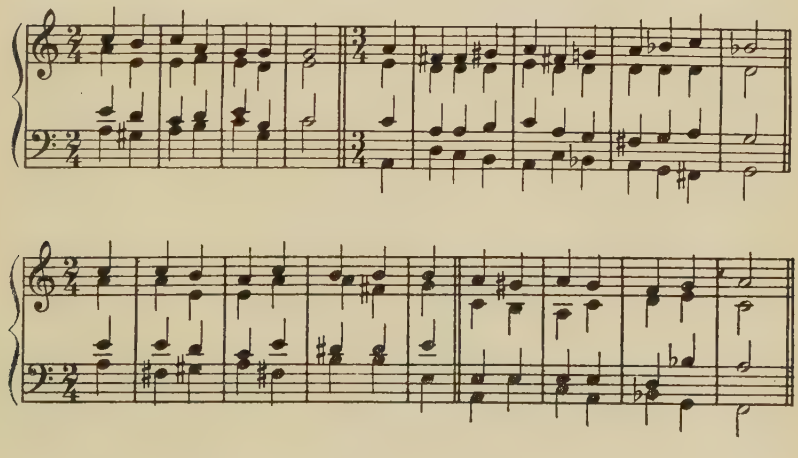
Exercises for Dictation involving modulation through seventh-chords.

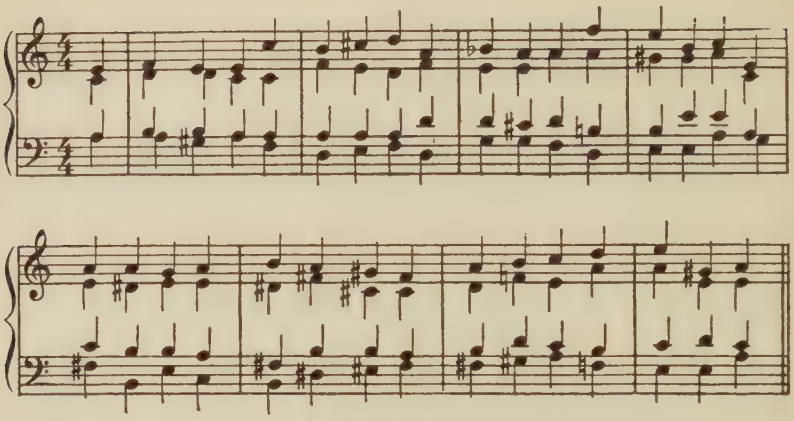
From *C*:





From *a*:





It will be noted in several of these modulations that the triad preceding the seventh-chord which is intended to initiate the new key may also be considered in that key. In truth, there is often a kind of 'No Man's Land' which may belong to either key or to both. A clear case, such as the modulation of the first exercise, where the C-E-G-B chord is the first which can belong to *G*-major, is rather infrequent; *all* of the fourth exercise may be considered to be in *F*, and so it goes. Note, however, that this makes the task of the composer and the improvisator less difficult rather than more.

Exercise: *Compose at least three exercises similar to the two long dictation exercises above.*

We have already considered a species of modulation in which the third scale-step of a minor key is chromatically raised in order to become the 'acute' leading-tone of the subdominant minor. (See p. 150.) I of *A*-major becomes easily V of *D*-major or V́ of *d*-minor, but I of *a*-minor must have a tone altered before it can become V́ of *d*-minor or V of *D*-major.

Review the suggestions for the technical management of this altered tone. Exactly what happens when the tone which is *to be* altered is doubled in another voice?—Do the tone and its alteration necessarily occur in the same voice?—Is the modulation smoother when they do?—In this connection, examine the chorales No. 20, the connection between phrases 8 and 9; No. 12, 4th measure from the end: is this a modulation?—Cf. No. 90, 3d measure from the end; No. 2, 1st

measure; No. 3, 5th phrase; No. 4, 6th phrase: what prevents a cross-relation? No. 6, 1st measure; No. 7, 5th measure, and the connection between the last two phrases; No. 11, 1st and 9th phrases, and the connection between phrases 13 and 14; No. 230, 1st and 4th phrases.

Do passing-tones allay the discomfort of a cross-relation?—May the first chord of a new phrase contain a tone in cross-relation with a tone of the previous chord?

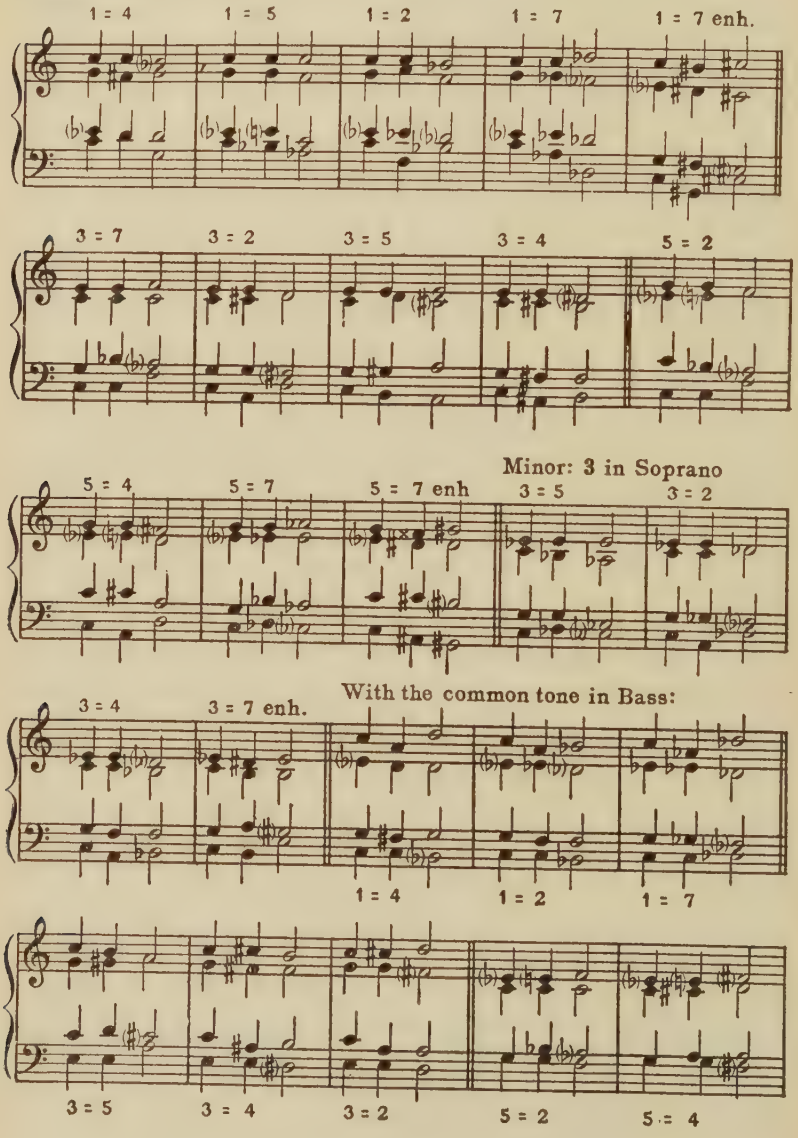
Bearing in mind the necessity for being especially careful when the first chord of a new key contains a tone, or more than one, not found in the old, we shall proceed to the study of

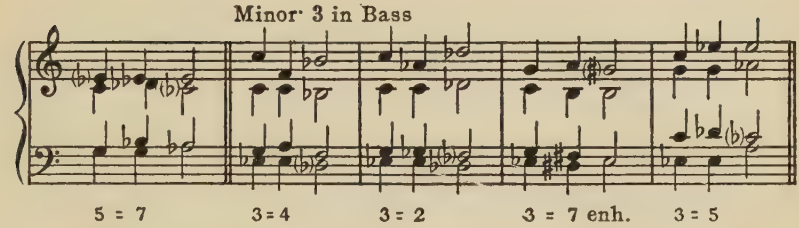
MODULATION BY MEANS OF PIVOTAL TONES

Hitherto we have managed our modulations by regarding entire chords as capable of belonging to one key or to another. We shall now take advantage of the freedom of modulation from key to key permitted by the system of twelve equal halftones in the octave. Our modern tuning, which dates from Bach, allows us to regard the *pitch* c as 1 in *C* or *c*, 2 in $B^{\flat}$ or $b^{\flat}$, 3 in $A^{\flat}$ or *a*, 4 in *G* or *g*, etc. We shall first limit our range of modulatory action by using c as a member (1, 3, or 5) of the Tonic triad of the old key and letting it become a member (4, 5, 2, or 7) of the Dominant seventh-chord in the new, since the first of these chords represents the maximum of rest and the second the maximum of activity. By taking advantage of the fact that V^7 of a major key is identical with $\acute{V}^7$ of the tonic minor, we may always terminate our modulations in either mode at will. By keeping our equivalent tone in the same voice, we may regard it as a *pivot* upon which the modulation turns.

[There may be more than one common-tone, and a chromatic half-step may or may not be necessary in another voice than that containing the pivotal tone. The accidentals in parentheses may be applied at will. It will be noted that the first modulation operates from *C*-major *or* *c*-minor to *G*-major *or* *g*-minor, and is thus a condensation of four changes of key. A special series for 3 of the minor mode as pivotal tone is necessary. Why?]

Modulation by carrying over one tone in I of old key to V^7 of new. (Soprano)





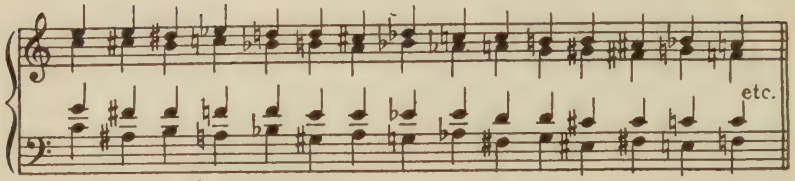
In many of these cases, the chord which is I in the old key may be regarded as having another function in the new. The point is that the modulation is worked without regard to that fact. A certain note of the tonic triad of the key you are in is chosen as a pivot; it becomes a member of the V^7 of the key you wish to proceed to; the other voices move usually to the *nearest* note of that V^7 without regard to whether their movement be diatonic or chromatic. How many keys can be reached in this way from *C*? from *c*? We shall postpone for the moment the problem of reaching any key from any other by means of pivotal modulation.

Keyboard Harmony: Duplicate the foregoing modulations at the keyboard, putting the equivalent or common tone in Alto and in Tenor.

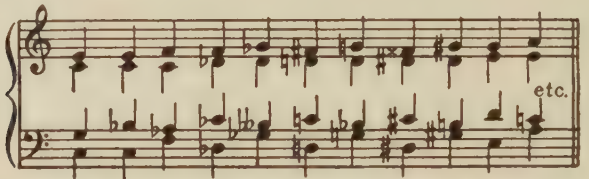
Experiment with pivotal modulation by carrying over one tone of the I of the old key to the V^7 of the new from other keys than *C* or *c*. E. g.—

From *D* to $E^\flat$ or $e^\flat$.
From $c^\sharp$ to $E^\flat$ or $e^\flat$.
From $C^\sharp$ to $A^\flat$ or $g^\sharp$.
From $e^\flat$ to *b* or *B*.
From $E^\flat$ to *C* or *c*.
From *F* to $E^\flat$ or $e^\flat$.
From $F^\sharp$ to *E* or *e*.
Etc.

Modulatory Sequences: Since it takes but two chords to establish a modulation, the scheme by which a single change of key is effected can be applied again and again as long as the second chord in the new key is the I (or the VI).



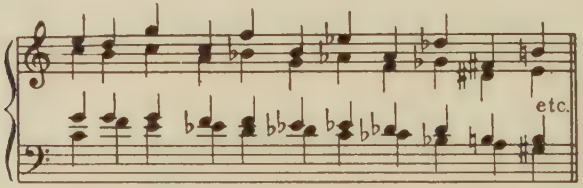
C: I *B*: V_1^7 I $B\flat$:V_1^7 I etc.



C: I *f* $\acute{V}^7$ I $g\flat$:$\acute{V}^7$ I *g*:$\acute{V}^7$ I $g\sharp$:$\acute{V}^7$ I *a*: etc.

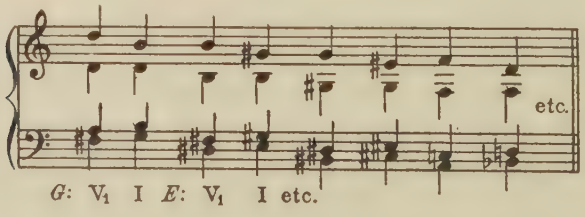
Observe that such changes of key passing from tonic to tonic up or down the chromatic scale may be notated enharmonically at will. Practically, the notation with fewest accidentals is to be preferred.

But some sequences progress along a 'whole-tone' scale:

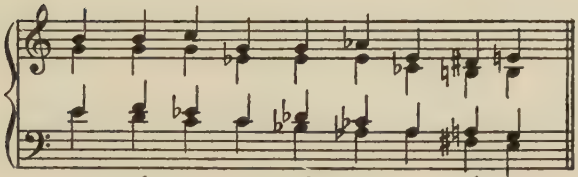


C: I V_3^7 I_1 $B\flat$:V_3^7 I_1 etc.

And others along a scale of thirds:



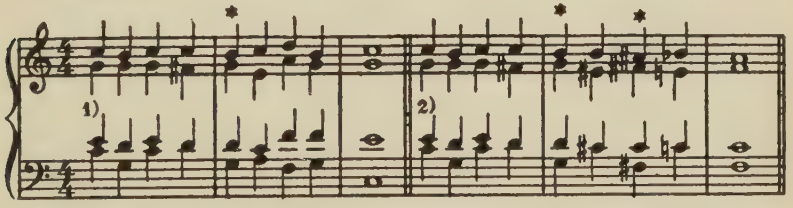
G: V_1 I *E*: V_1 I etc.



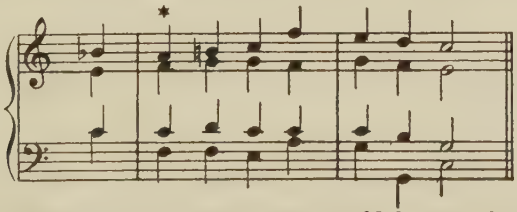
In the second case, one is 'back home' in three sequential changes of key.

Invent other modulatory sequences of this nature.

It is important to note that a modulation may be merely *transient,* i.e., consist of a succession of two chords the second of which has *two* functions. It is both chord of resolution in the key entered and chord of progression into another key,—either back into the original key or on into a third key.
For illustration:



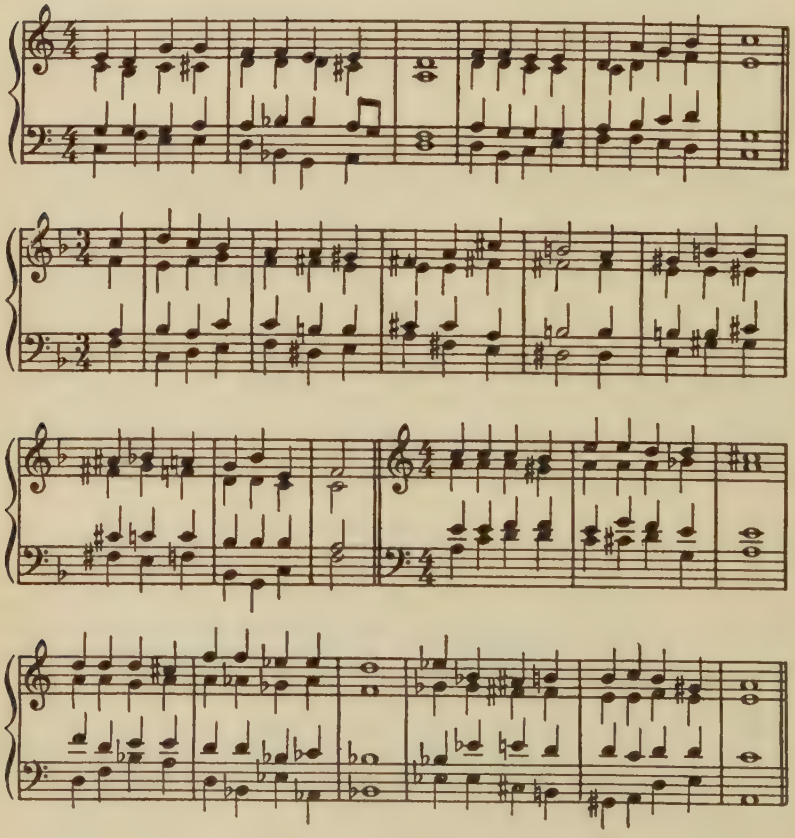
In 1) the chord marked with an asterisk is the terminus of a transient modulation; it is both I in *G* and V in *C,* to which key the harmony returns. But in 2) the asterisks mark the terminal chords of true modulations. They are but momentary, yet the chords marked cannot be considered as indicating any turn toward the key which follows. If 2) had ended thus:

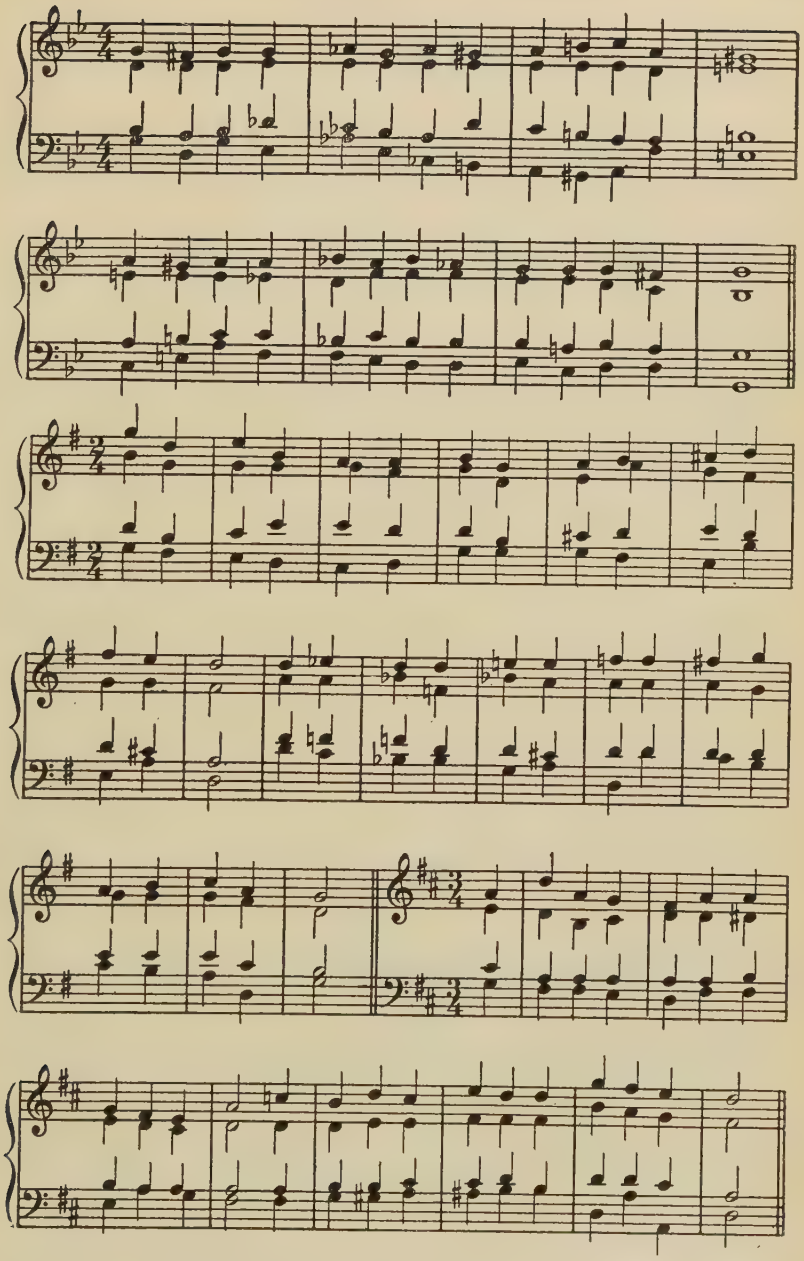


the chord on F which ends the first version would become the terminus of a transient modulation because its function is I in *F* but clearly 'secondary' (IV) with respect to the V$_3^7$ in *C* which follows it in the second version. The management of transient modulations and their perception in dictated exercises will not trouble the student accustomed to the analysis of the Bach chorales.

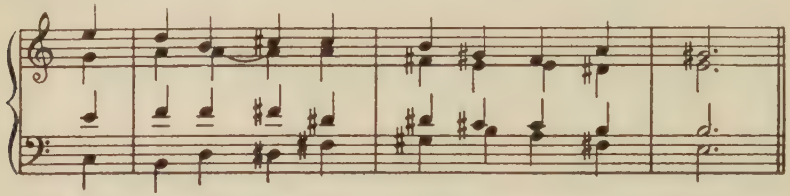
The exercises for dictation which follow involve modulation of the pivotal type as well as that in which a complete chord in the old key becomes a chord in the new. (Could there be modulatory sequences of this earlier type?) An occasional transient modulation will be encountered. All the exercises in this section use freely all the chord-forms hitherto studied, and thus constitute a review of diatonic harmony.

Exercises for Dictation (Review):

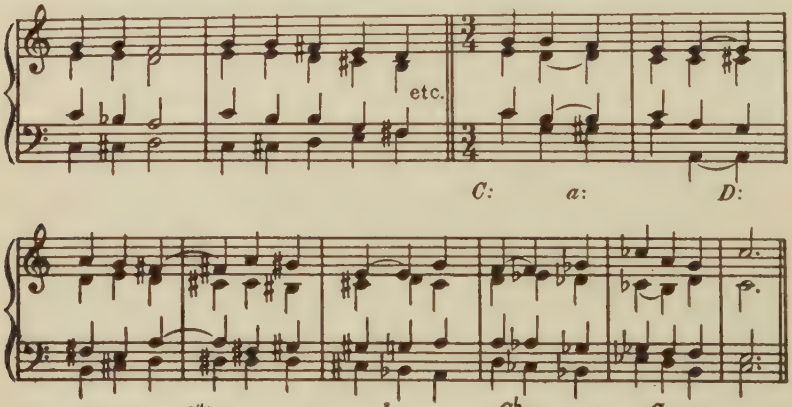




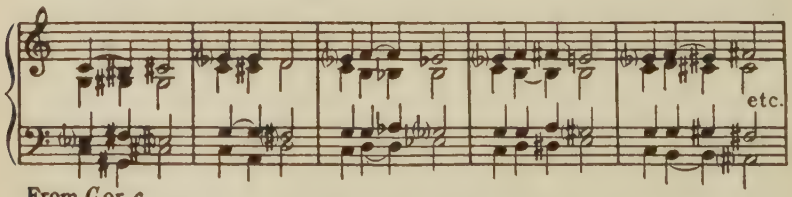
The principle of pivotal modulation may be consistently applied even to the extreme where a tone of the VII^7 in the old key becomes a tone of the VII^7 in the new:



But this is admittedly an extreme. In general, the remoter chords of a key are not effective modulatory agents. A dominant or a secondary dissonance is more speedy and sure when used to introduce a new key:



Modulations to *all* keys are possible by employing a note of the V^7 of the old key as pivot in those instances where a member of the I will not serve:



From *C* or *c*
to *C♯* or *c♯*; to *D* or *d*; to *E♭* or *e♭*: to *E* or *e*; to *F♯* or *f♯*:

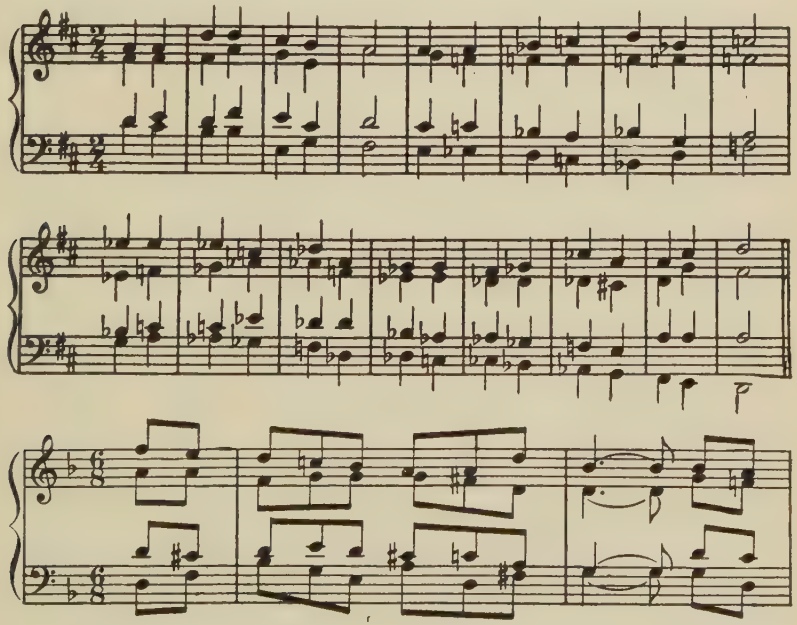
Complete the series, omitting the modulation to F.

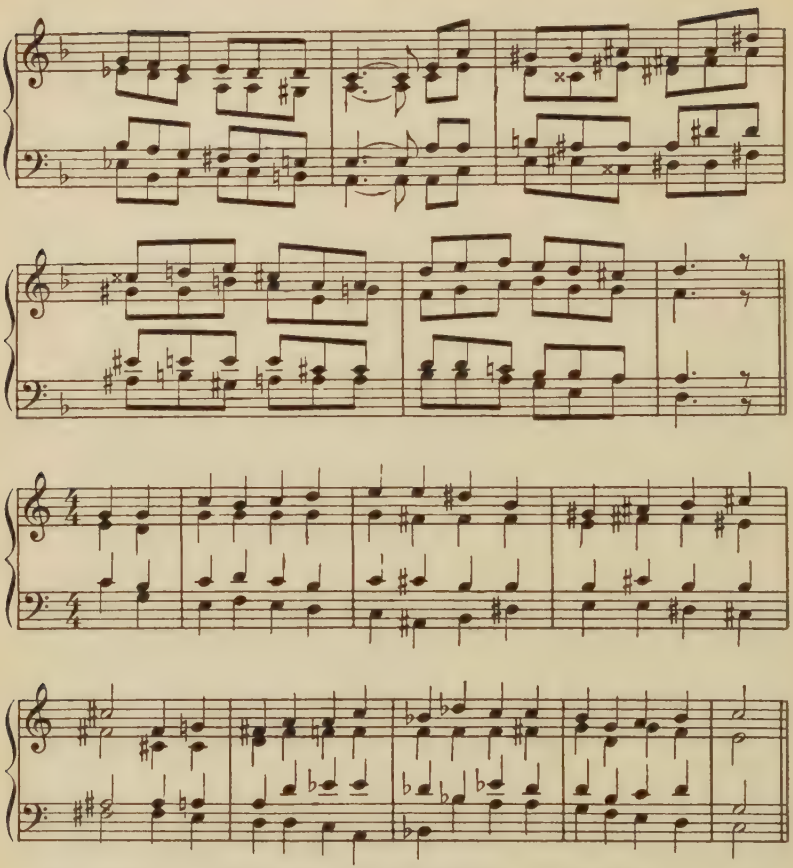
Keyboard Harmony: With the indicated starts, pass directly, by means of pivotal modulation, to the keys indicated:

3 4 *F:* → to *B.* I V_2^7	1 2 *C:* → to *A.* I V_1^7	3 4 *c:* → to $G^{\flat}$. I V_1^7
1 2 3 *e:* → to $A^{\flat}$. I $\acute{V}$ I	3 2 3 $g^{\sharp}$: → to *C.* I II_1^7 I	3 2 *b:* → to *F.* I $\acute{V}_3^7$

The principle of pivotal modulation should now have been sufficiently illustrated to enable the student to apply it when other chords are used, whether Dominant or Secondary.

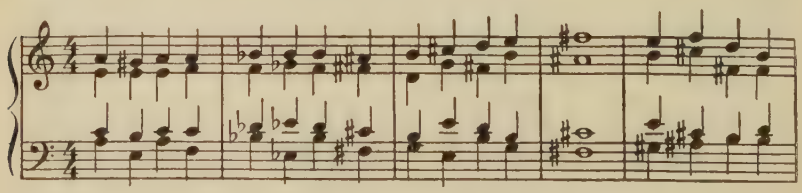
Dictation involving Modulation when a tone in V^7 of the old key becomes a tone in V^7 of the new:

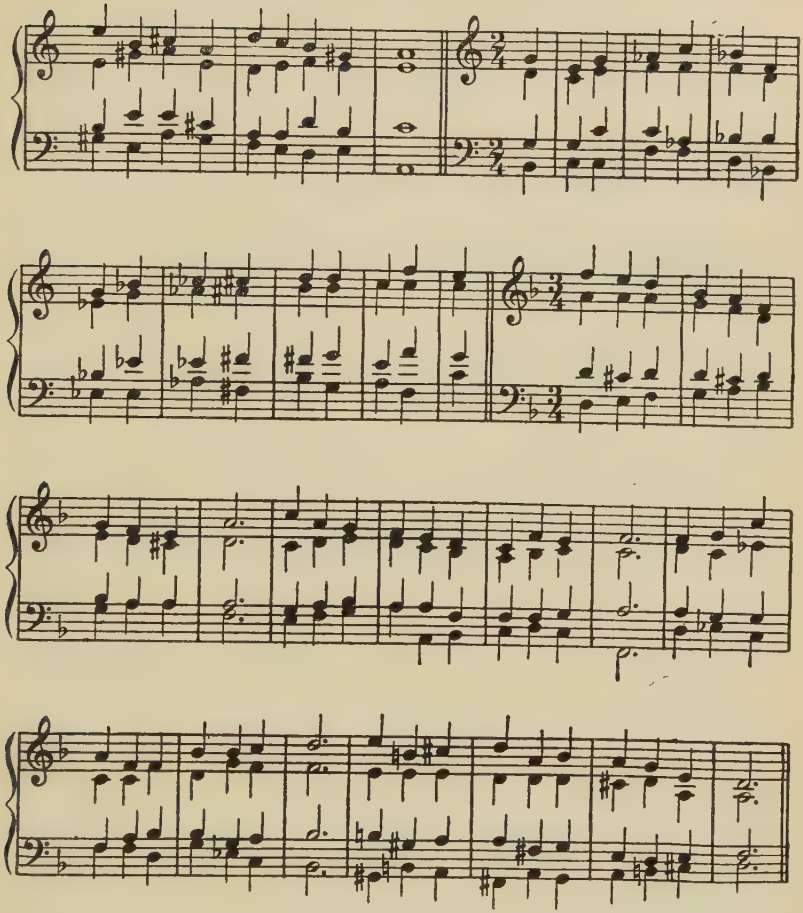




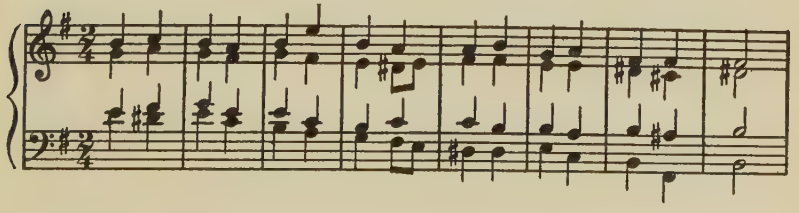
Supplementary Exercises in Dictation (Review): These exercises embody all types of modulation which do not involve chromatic symbolization, though not all the exercises modulate.

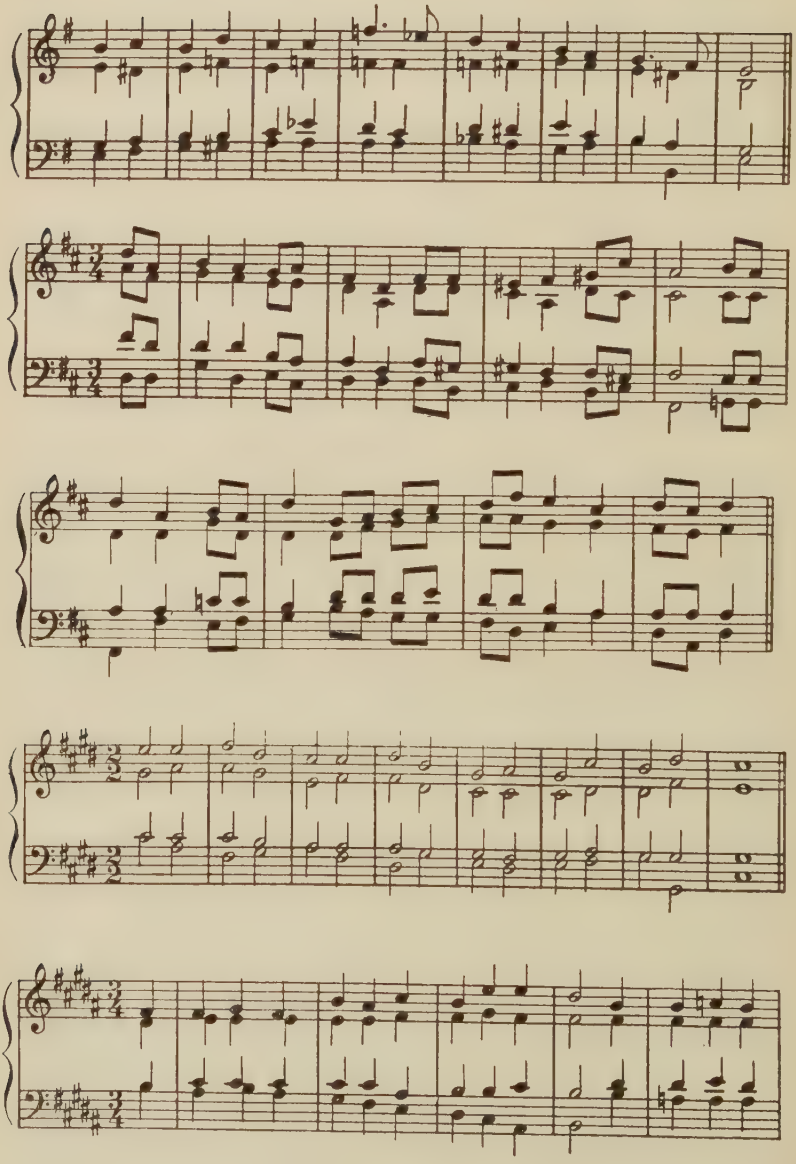
Triads only:

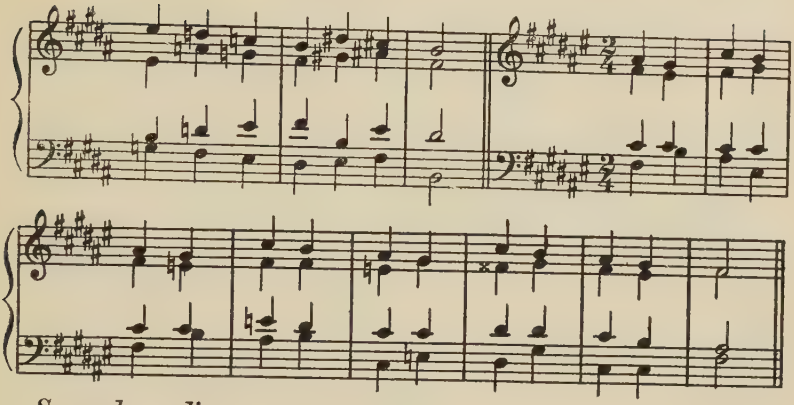




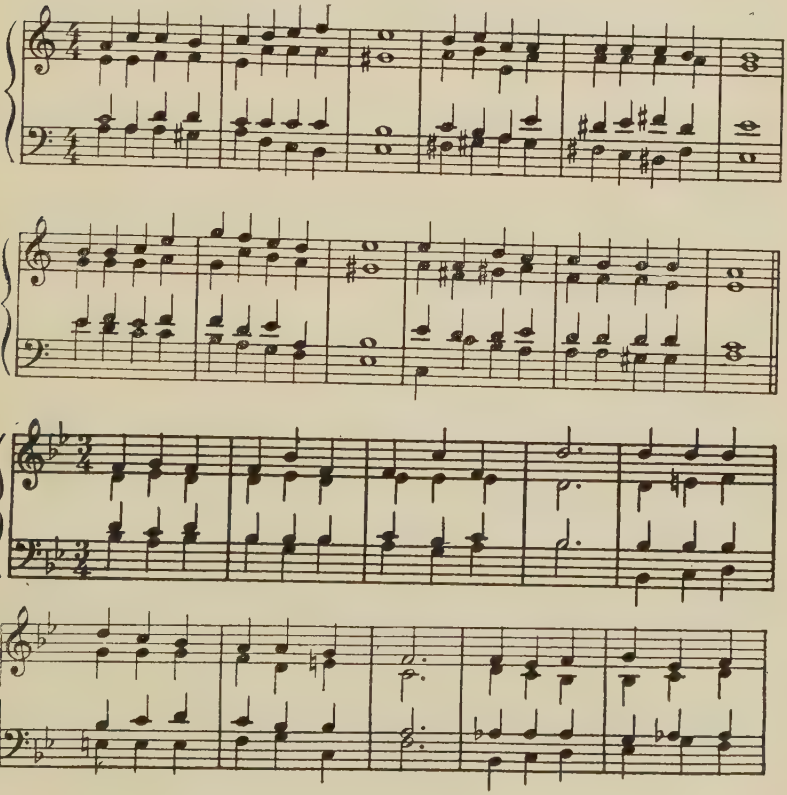
Triads with Dominant and Secondary Dissonants:

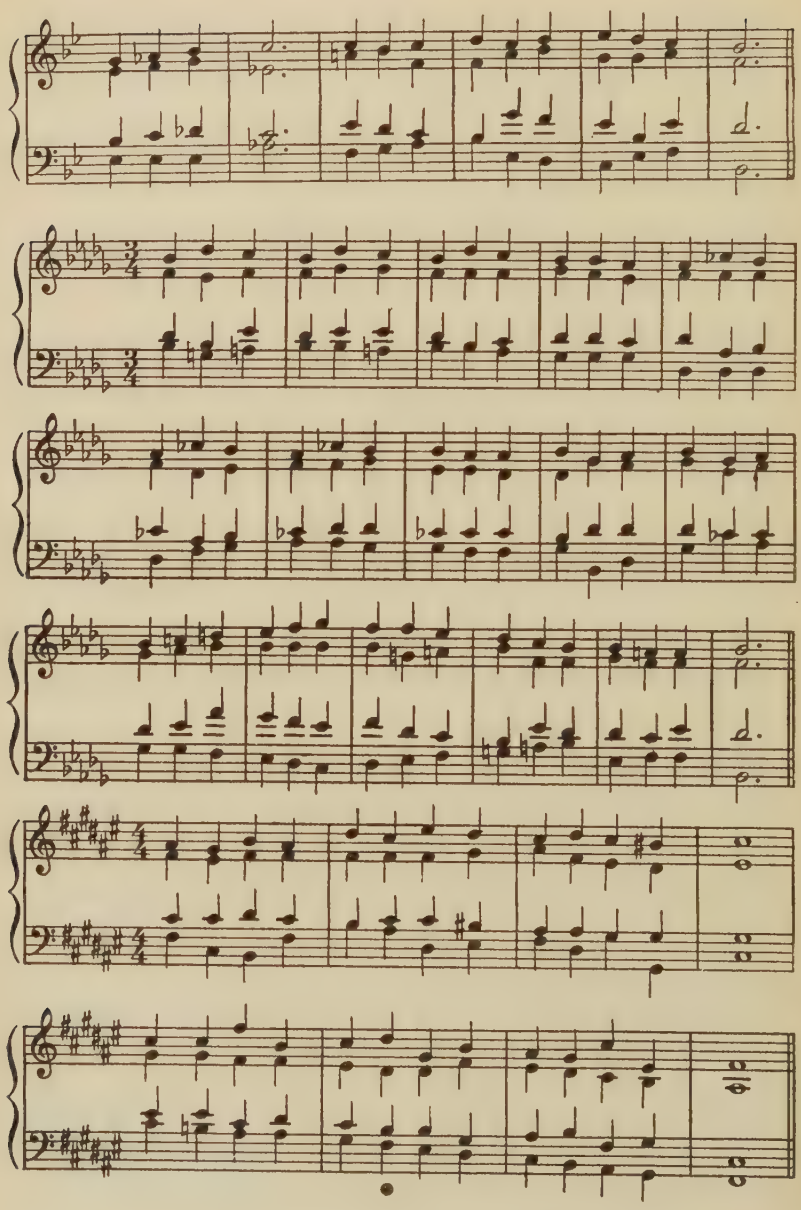




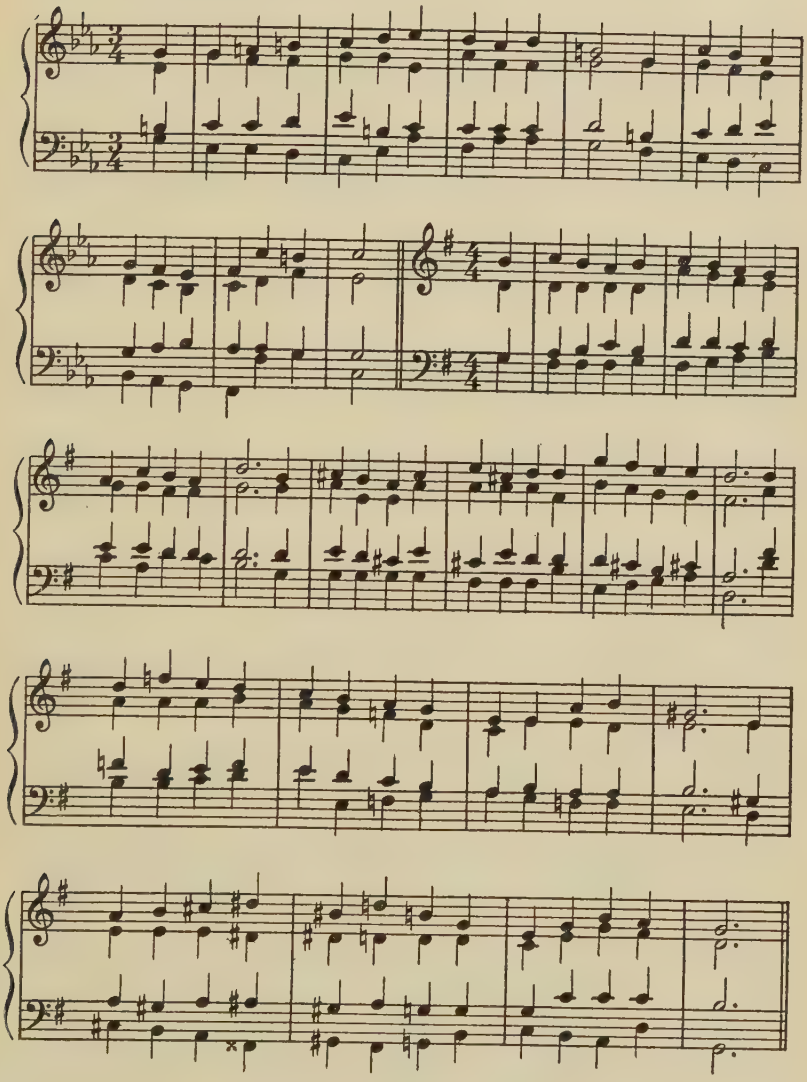


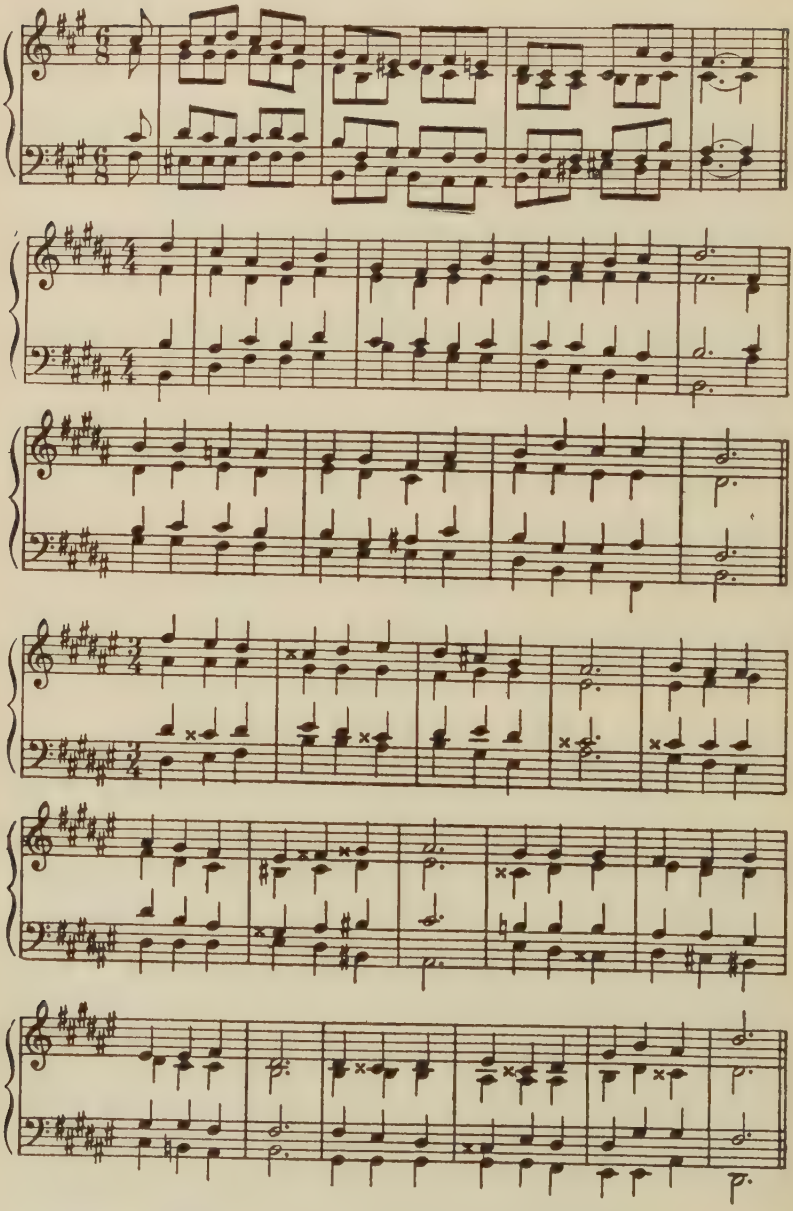
Secondary dissonants especially:

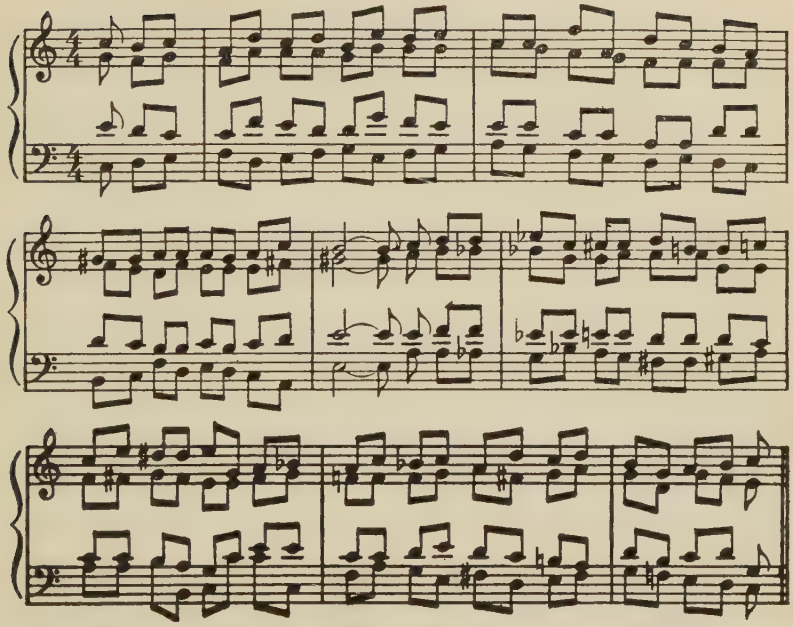




The Remoter Dissonants:







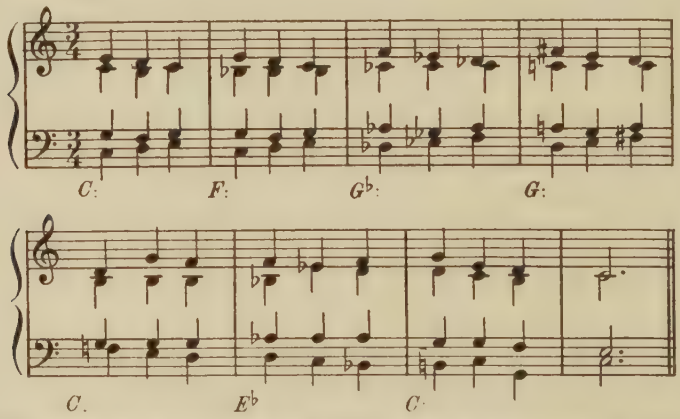
The preceding exercise presents so many problems of analysis that it seems advisable to represent it symbolically here, not that there is but one correct solution, but that the student may know from what standpoint it was composed:

Rhythm: 2 ♪s to a beat

| | | |

The metrical pattern is pretty consistently etc., throughout, though the notation is conventionally regular. The first problem of tonality is presented by the ambiguity of the chord-succession in measures 1 and 2. One may well ask 'Just where does *C* become *a*?' But owing to the sequential arrangement of the first twelve chords in three groups of four, it would seem logical to arrive at VI in *C* at the beginning of measure 2 and to keep the next unit (four chords) of the metrical pattern in *C*, turning to *a*-minor when the directional tendency of the harmony becomes inevitable. The modulation to *E* is pivotal (4 in *a* = 7 in *E*), likewise all the other modulations save that to *G* in measure 7. Here the metrical pattern is broken. The I in *F* is expected as the resolution of the V_1. Instead, the harmony jumps from Dominant in *F* to Dominant in *G*. Chromatically, the chord D-F♯-A on F♯ would be a VI_1 with $\hat{1}$ in *F*, but the chord-succession which it initiates points so emphatically to *G* that the diatonic analysis is not only possible but more logical.

It should be noted, in this connection, that *a modulation may be incomplete*, i.e., fail to arrive at a definite resolution within a key, though the directional tendency of the harmony is unmistakable.



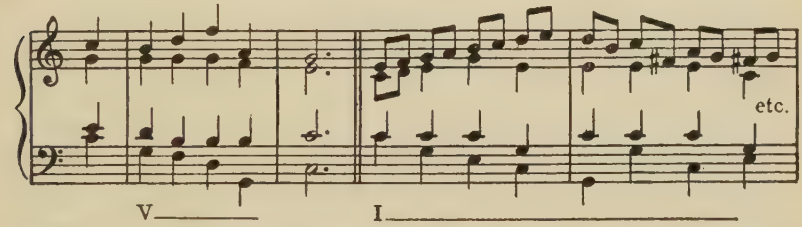
Hitherto such modulations have been purposely avoided in the exercises for dictation, for the sake of greater definition of key, but they are frequently encountered in actual compositions, being particularly effective in sequences like that in measures 2-4.

HARMONIC AND MELODIC MOVEMENT

The movement of tones in a single voice-part may be described as *harmonic* when the voice sings the roots of chords in fundamental position; this can occur only in the Bass. All other movement is melodic.

Certain special cases of Melodic Movement need to be singled out for remark:

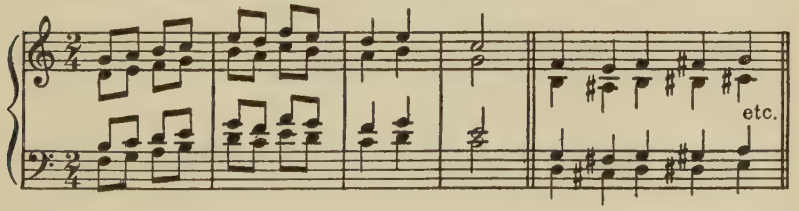
1) *When the harmonic function of a passage containing two or more chord-forms (or arrangements) remains the same:*



When inharmonic tones are used, the possible variety of effect becomes much greater.

Exercise: Experiment, with the idea of attaining a satisfactory musical effect while employing chords with similar function (Tonic, Dominant, or Secondary) for several measures at a time. At least four exercises should be composed, two in major and two in minor; one of each pair should be strict and the other embellished by inharmonic tones.

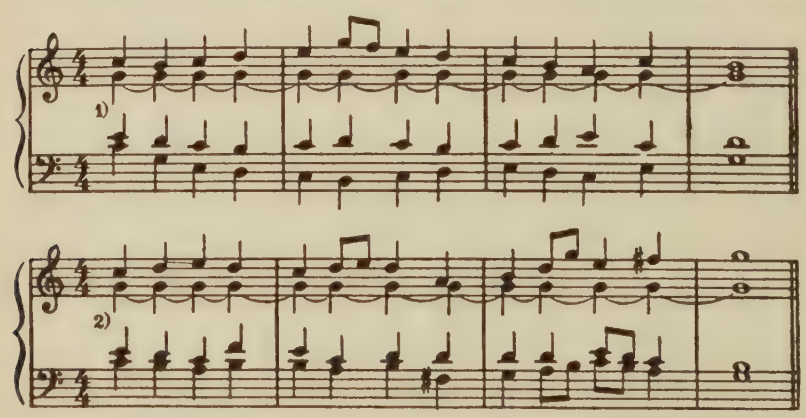
2) *When the chord-form is shifted bodily up or down a scale or parallels a melodic line;* the scale itself, or the melody, conditions this phenomenon, which need not detain us:



Such parallel movement gains an effect easily, and is applied whether or not there are parallel fifths involved, since the melodic line, in whichever voice it may be considered to be, is merely adumbrated by the voices. (Consult the operas of Puccini for innumerable examples: the device can be overworked.) The analysis of such passages in detail can only be made from the standpoint of chord-form, if it needs to be made at all.

3) *When a series of chords pivots about a given tone which remains in one voice.*

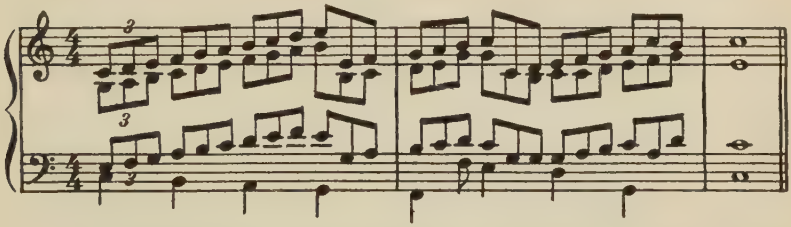
This type of movement is familiar in its simplest form as the mere retaining of a 'common-tone' in the same voice. Prolonged, the effect is like that traditionally associated with organ-music, when a deep pedal note is held for several measures while the harmony moves freely above it. This is termed an **Organ-Point.**



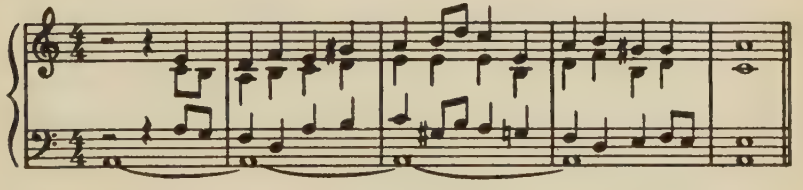
In 1), the o of the Alto is common-tone in all the successions. Would this have the effect of Organ-point if the o were not tied? In 2), has the o the effect of Organ-point whether tied or not? Why?

It is a curious psychological fact that *any* held tone will be accepted by the ear no matter what harmonies are put with it. This may be appreciated, even in strictly diatonic harmony,

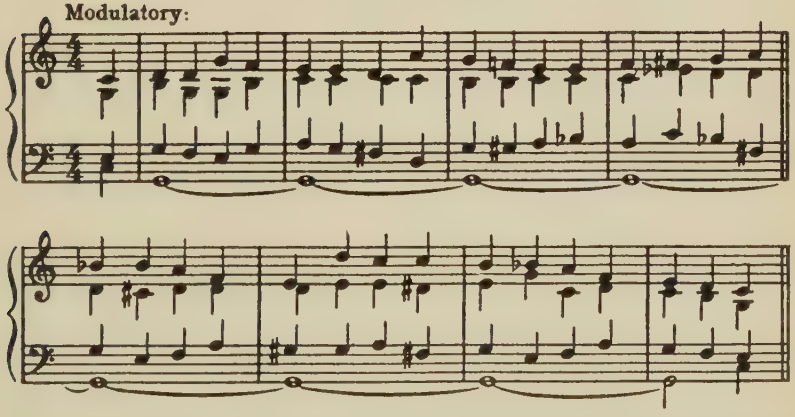
since an Organ-point may be based upon any tone of the scale, and any chord of the key may be employed with it:



For an extended Organ-point, the principal roots of the key (the Tonic and its three Dominants) are the more frequently chosen bases.

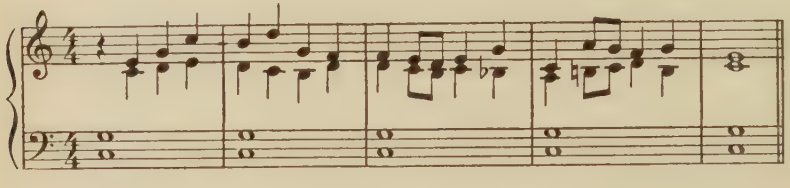


Modulatory:



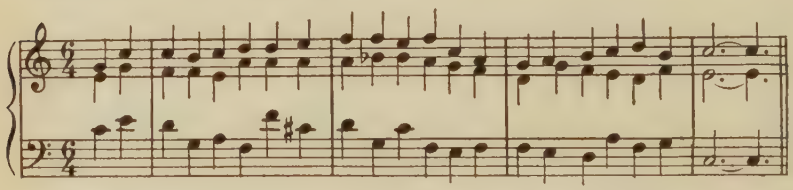
Into what keys are modulations effected in the foregoing exercise?—What tone of the scale does the Organ-point become in turn?—Is it ever harshly dissonant?—Is the dissonance objectionable?

Both tonic and dominant notes may be used as a double Organ-point:



From its effect of a drone-bass, long associated with rustic instruments, the double Organ-point on tonic and dominant is frequently called 'pastoral.'

Exercise: *Compose modulatory exercises over Organ-points in the Bass.* Since the moving voices are then only three in number, considerable ingenuity is required to give the effect of full harmony. When the tone of the Organ-point becomes actually inharmonic, the other three voices must be capable of standing by themselves as three-part harmony:

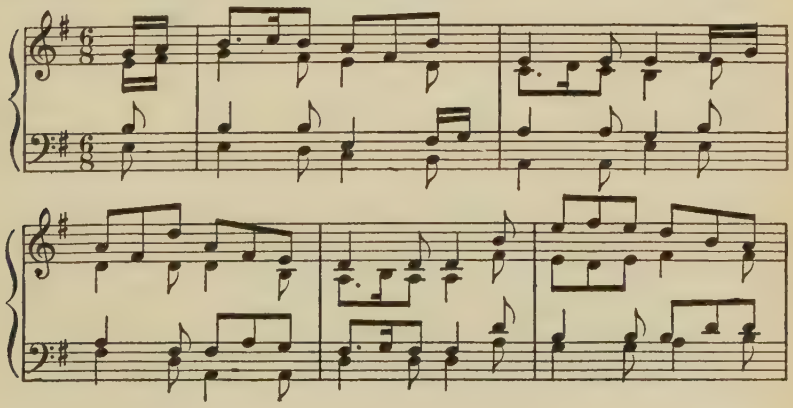


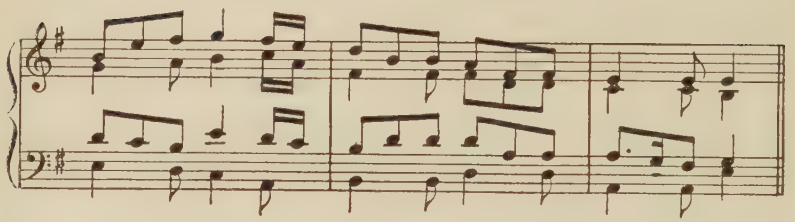
An Organ-point when definitely Tonic or Dominant, etc., may be symbolized by a I or V placed below the symbols of the chords which change in function, with a dotted-line indicating the extent of the persistent note. A true Organ-point in an upper voice, while less common than in the Bass, may be indicated by 'Alto: V' or 'Tenor: I' similarly placed. When the Organ-point is in the Bass, the Tenor may usually be considered the true Bass.

DICTATION WITH INHARMONIC OR UNESSENTIAL TONES

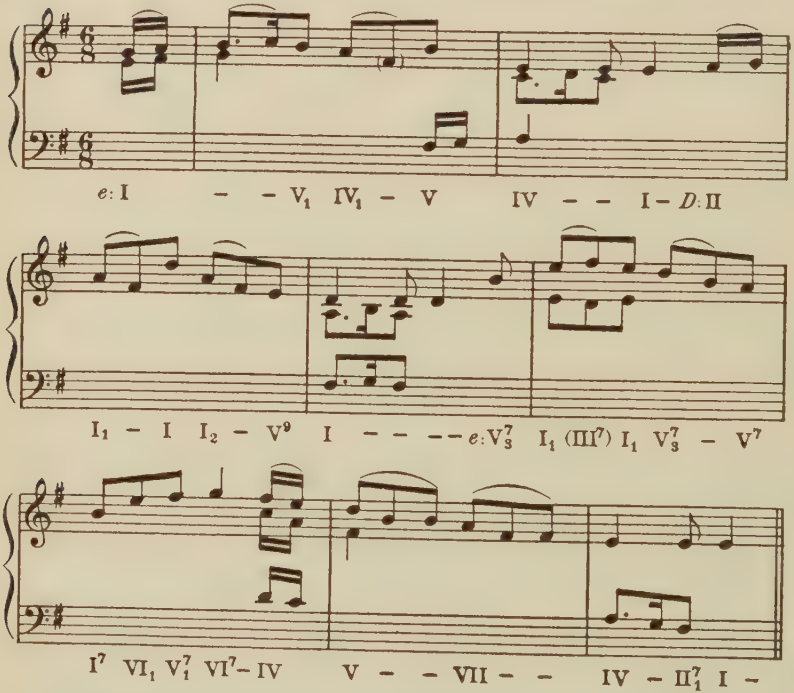
Inharmonic tones are customarily cancelled in analysis. In dictation, these tones must be present in the finished rescript. Rather than clutter up the harmonic symbols with additional figures representing the inharmonic tones, we advise jotting these down in their proper voice-part *except when the inharmonic tone forms a casual chord-form which may be more easily represented by a customary modification of the harmonic symbol.* The important thing is to keep the symbols from resembling too closely a problem in Higher Algebra. Complete discretion may be allowed as to exactly how a casual chord-form shall be symbolized. When these chord-forms occur squarely on the beat, they may be given full harmonic symbolization or the symbol may be enclosed in parentheses. Rhythmic irregularities have to be notated with exactitude. The melodic figure in which an inharmonic tone occurs has usually to be transcribed entire. Experience will show the student how best to represent inharmonic tones without slighting the analysis for function.

The following harmonic setting of an Irish folktune offers an interesting problem in representation:





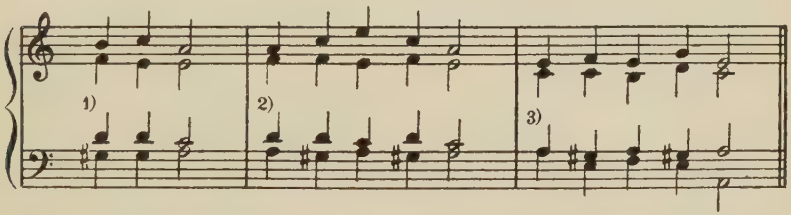
This setting might be taken from dictation thus:



The Soprano is, of course, taken complete. In the first fractional measure, the Alto figure containing the inharmonic F♯ is transcribed entire. In the first complete measure the Soprano F♯ is considered inharmonic in the IV_1 (otherwise II^7_2); the harmony on the last beat is really V-$\widehat{III}_1$, but the function is considered Dominant, the passing tone G appearing in its melodic figure in the Tenor. The harmony on the last beat of measure 6 is IV with accented passing-tones in both Tenor and Soprano: since the Alto part is tricky at that point, the student

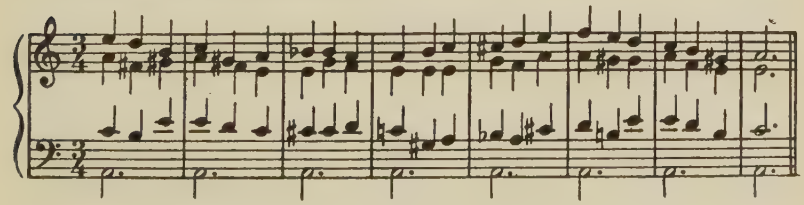
who heard it would naturally jot it down. Throughout, a dash indicates the beat when the harmony remains the same; this obviates misunderstanding when the exercise is reconstructed later.

Inharmonic Tones Unprepared or Unresolved. The inharmonic tone, being always dissonant, is a means of expression for intense emotion or for securing emphasis. In Bach's four-part writing this dissonance, when not merely a passing-tone, is almost always carefully prepared and resolved, because that was the harmonic custom of his time. But in our own time an inharmonic tone may lack preparation, or resolution, or both. It may be *added* to a regular chord-form simply for the sake of the dissonance:



In 1), the inharmonic c of the second chord is not resolved. In 2), the same note of the same chord is neither prepared nor resolved. In 3), the harmony is *a*: I-$\acute{V}^9$-II_2^7-$\acute{V}^9$-I. The inharmonic c of the first $\acute{V}^9$ is prepared; it is resolved to B while the harmony changes to II_2^7; this chord has an inharmonic E in Soprano which does not resolve, neither does G in the second $\acute{V}^9$. 3) is not an extreme case for modern practice in harmony, but it is difficult to analyze such successions when dictated. A few cases like 2) occur in the exercises which follow.

Exercises for Dictation:



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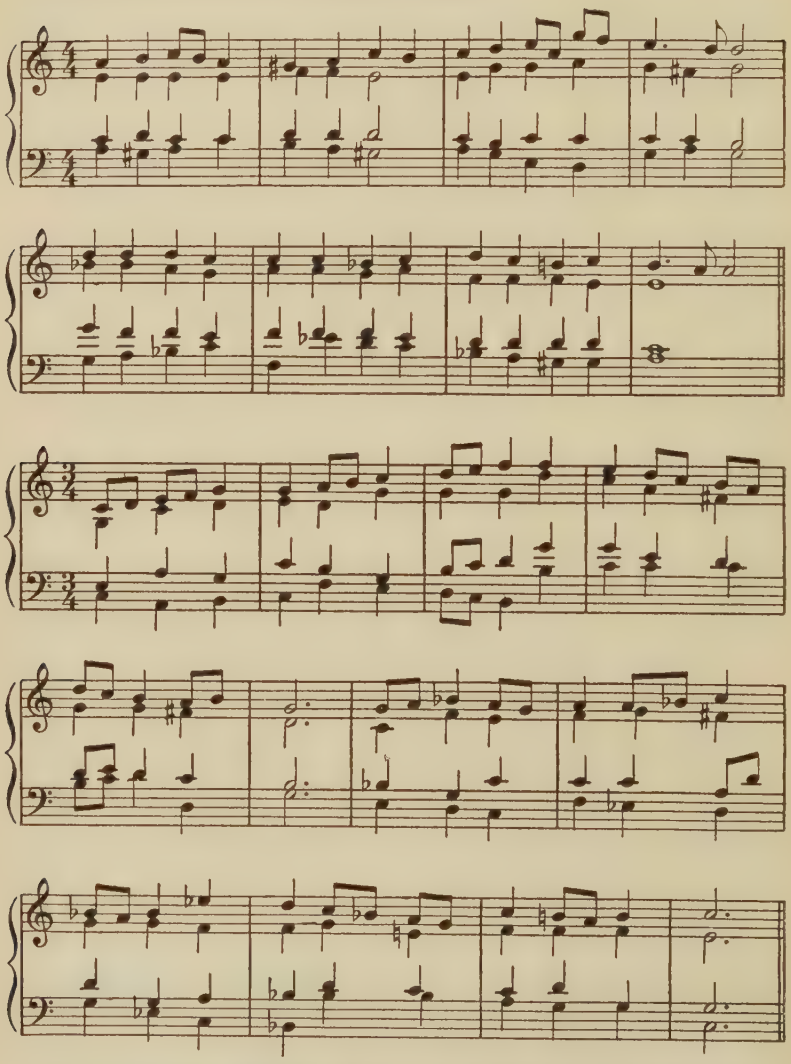
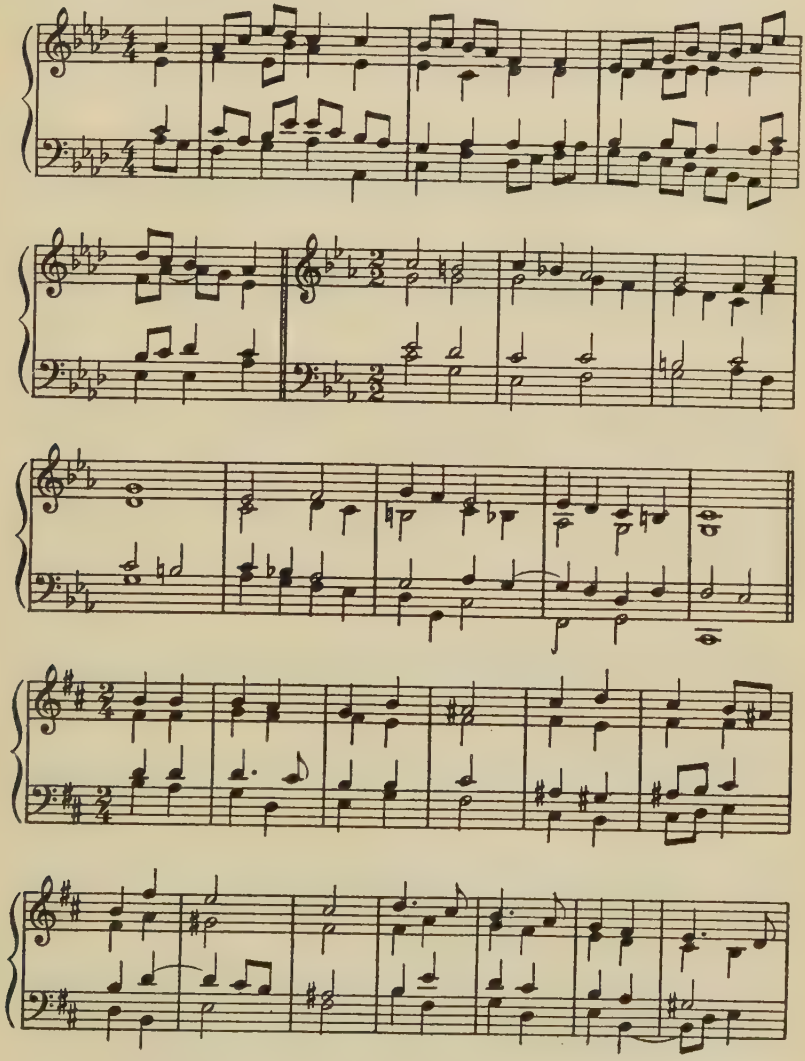
Inharmonic tones in Soprano only:

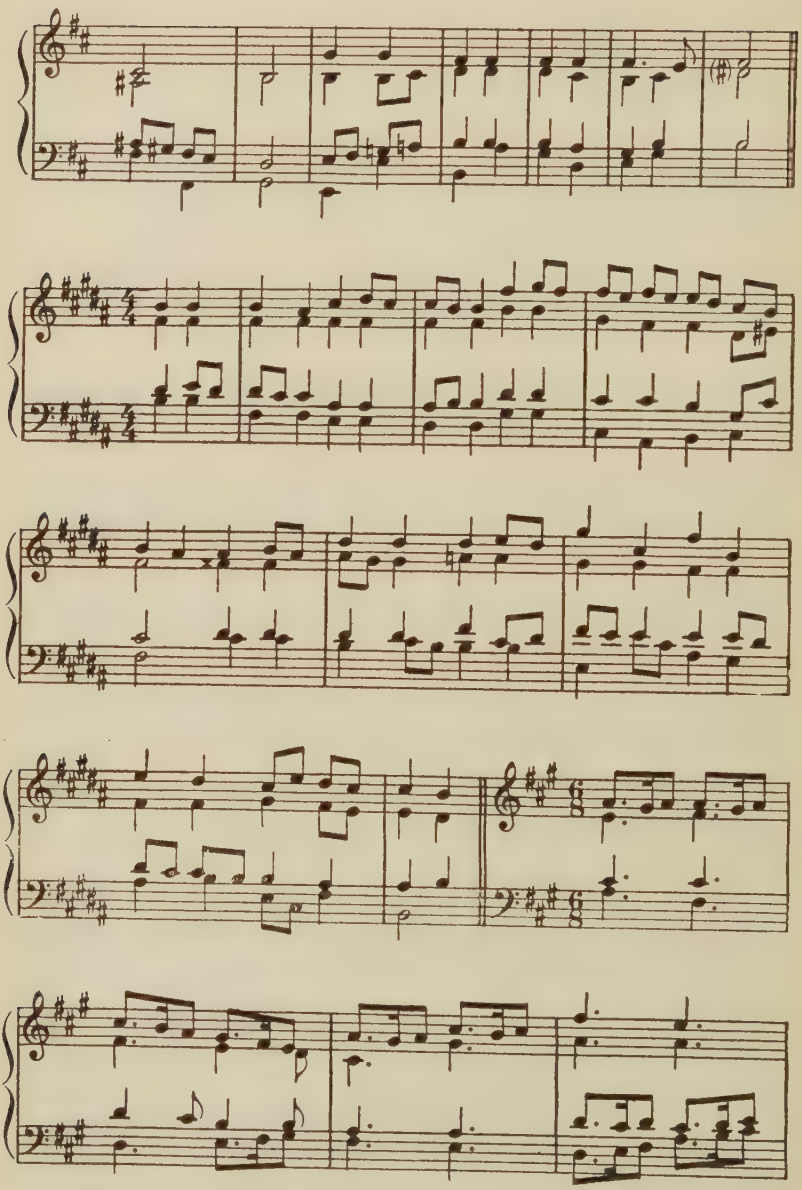


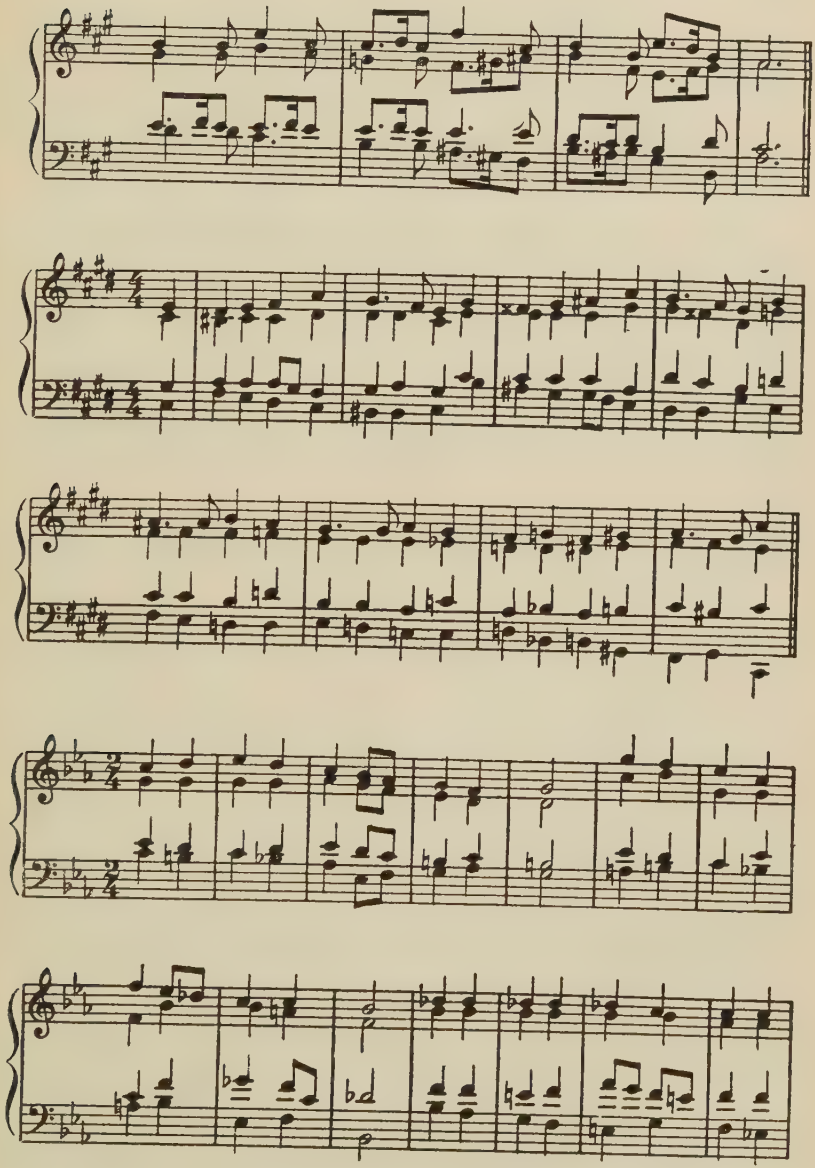
The instructor should compose additional exercises with inharmonic tones in Soprano or adapt earlier dictation exercises

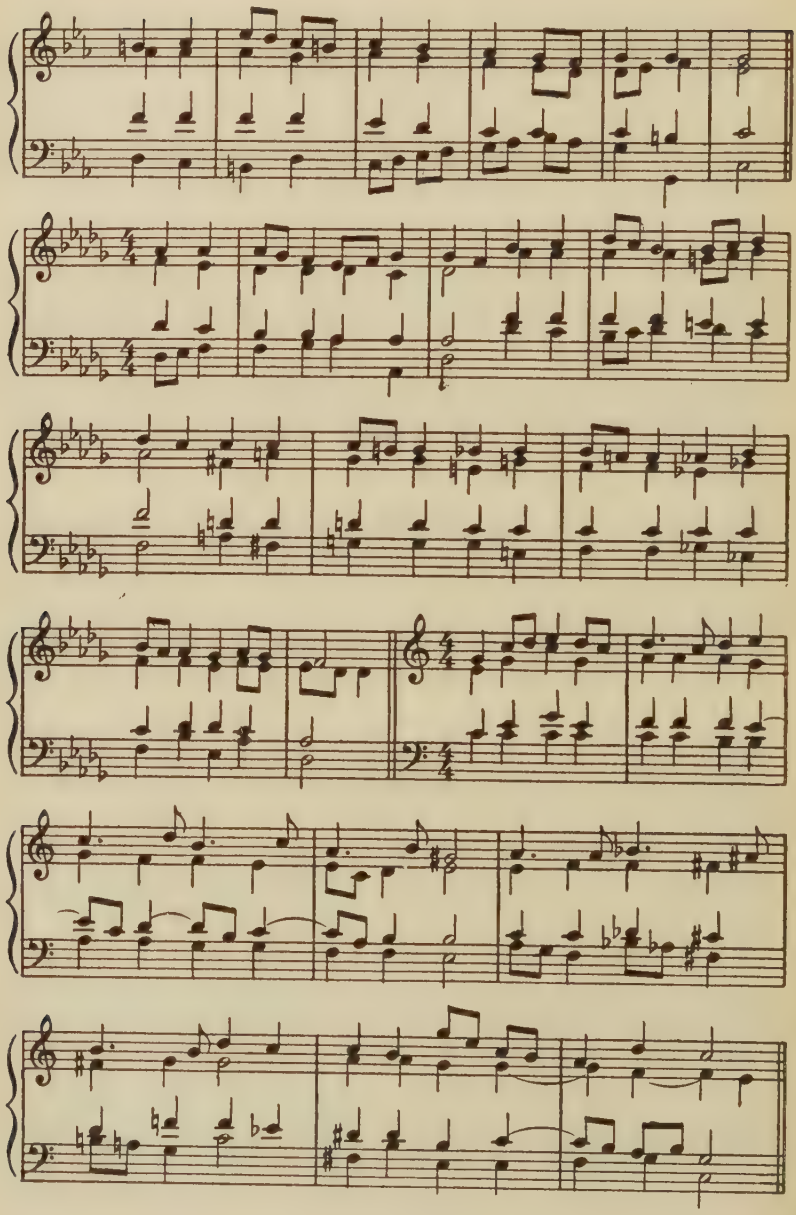
by inserting embellishment of the Soprano part till no difficulty is experienced in taking such exercises from dictation.

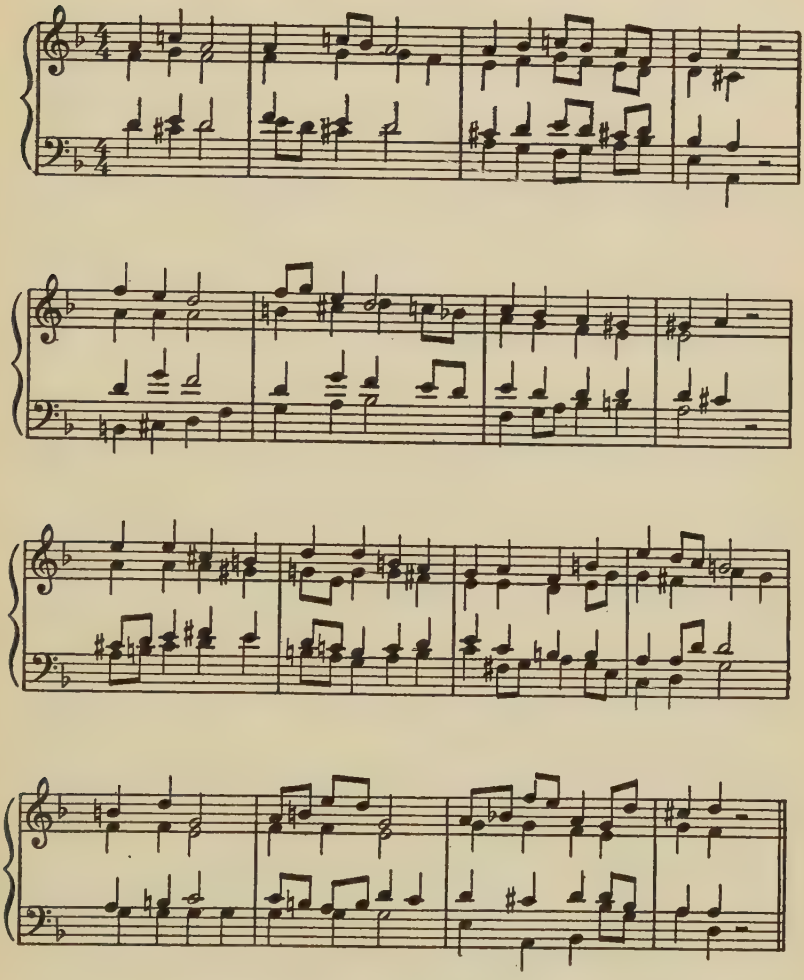
In any part:











The student will observe that throughout this Manual there is an avoidance in the exercises for dictation of the crossing of the voice-parts which is a frequent feature of Bach's part-writing, even when parallel perfect fifths result, as in measure 9 in the foregoing exercise. It is perhaps advisable not to observe strictly this limitation of technic in the harmonization of melodies.

PART IV

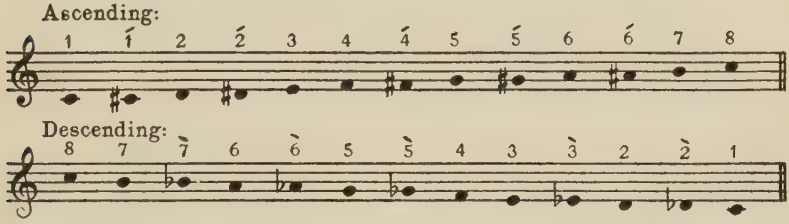
THE STUDY OF CHROMATICS

CHROMATIC ALTERATIONS OF TONES IN THE DIATONIC SCALE

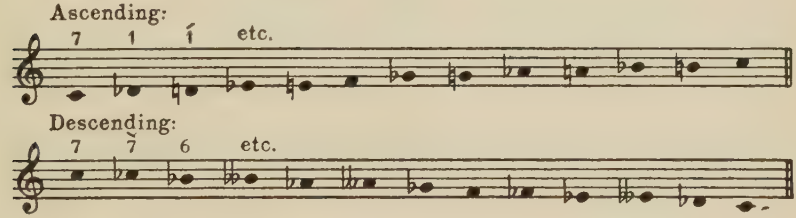
FROM the most liberal standpoint, any note of a major or minor key may be chromatically altered, i.e. raised or lowered a half-step. This is done in notation by means of an accidental. Each note of the staff may be spelled in five different ways and have five different pitches, for example, c^{bb}, c^{b}, $c^{\natural}$, $c^{\sharp}$, and $c^{\times}$. As a member of a diatonic scale, it may, however, stand for but three different pitches, and occasionally be restricted to two. Thus there is, as a matter of practice, no use for a c^{b} in the key of *C*, since the *pitch* of c^{b} is practically represented by the note B which is in the scale of the key as regular seventh step. But both C as 1 and $c^{\sharp}$ as $\acute{1}$ may be employed because there is no diatonic equivalent for $c^{\sharp}$. For the second step, D^{b}, D, and $D^{\sharp}$ may be employed, E^{b} and E for the third, F and $F^{\sharp}$ for the fourth, G^{b}, G, and $G^{\sharp}$ for the fifth, and so on. Symbolically, *the acute accent is here employed to indicate all members of the scale which are raised a half-step, the grave accent to indicate those similarly lowered.*

The usage of composers is not standardized with respect to the spelling of a chromatic scale which is *purely melodic*, but common sense dictates the exclusive use of accidentals which

raise the diatonic tones when the melody ascends and lower them when it descends. Thus the chromatic scale between c and its octave in *C*-major would be spelled thus:-



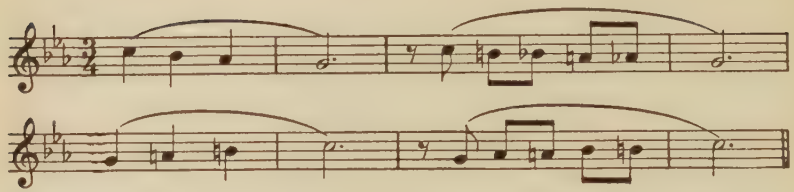
And in $D^{\flat}$ major (without key-signature):



There is an ancient shibboleth with respect to 5 of the scale. Composers before the time of Liszt rarely lower it for any reason. Almost invariably they use 4♯ instead of 5♭, even in melodic figures which do not affect the harmony. We are still under the influence of this habit.

We recommend, for the sake of brevity, the use of the word 'sharp' in speaking of a chromatically raised tone and of 'flat' in speaking of one chromatically lowered. Thus 6♯ when referred to as 'six-sharp' would mean the chromatically raised sixth step of a diatonic scale; when spoken of as 'six-acute' it would mean the alternate diatonic pitch of the sixth step of the minor mode, which is a variable.

Symbolize and sing aloud the following melodic successions in *c*-minor:



Do you consider that the notes in the second slurred group have been correctly notated for a descending chromatic scale?

When chromatic tones are sung either with letter-names or with numbers, the inflection of the pitch is sufficient to show that the note has been correctly thought. It is not necessary to vocalize 'Six-acute' or 'Six-sharp,' 'A flat' or 'A natural,' while singing; simply sing 'Six' or 'A' at the correct pitch.

Exercise: Spell, in terms of notation, $\grave{6}$ in $C\sharp$; $\acute{2}$ in $D\flat$; $\acute{4}$ in b; $\grave{3}$ in B; $\grave{7}$ in $F\sharp$ $\acute{5}$ in a; $\acute{1}$ in $G\flat$; $\acute{6}$ in f; $\grave{2}$ in $b\flat\flat$; $\grave{4}$ in e; $\acute{3}$ in $a\sharp$; $\acute{7}$ in $e\flat$; $\grave{5}$ in D; $\grave{1}$ in c, etc. Continue this practice orally and at the keyboard till you can name or play instantly any chromatic note in any key.

A valuable corollary exercise consists in having the instructor or a member of the class conduct problems in mental calculation analogous to the 'mental arithmetic' of schoolboy days. For example:

A certain note is $\acute{4}$ in the key of D; make it $\acute{5}$ of a major key; take the tonic note of that key; change it enharmonically, making it $\acute{2}$ of a minor key whose tonic is?—The answer is A. (By 'change it enharmonically' is meant the simplest change. Of course C, in the present problem, *could be* $D\flat\flat$, but the change would be less simple than $C = B\sharp$; moreover, $D\flat\flat$ could not practically be $\acute{2}$ in any minor key.)

Or the problem may be made more inclusive: G is enharmonically equivalent to $\acute{4}$ of a certain minor key; take the Bass of the

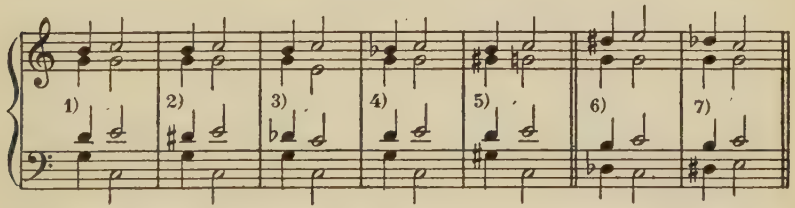
I_1 in that key; make it the 7th of the VI^7 in a major key, the $\acute{2}$ of which is?—Ans.: B♯.

This sort of problem is especially useful later, when the chords may be chromatically altered.

CHROMATIC ALTERATIONS OF TONES IN DIATONIC CHORDS

Any note or notes of a diatonic chord may be raised or lowered by accidentals as long as the function of the chord remains unchanged.

This is a very prosaic way of describing a process which results in much beauty and variety of harmonic effect within a given key. For example, if we take the succession V-I in major and experiment with the tones of the V to see how many we can alter without changing the dominant function of the chord, we shall discover the limitations under which we must ordinarily operate:



1) is the original succession. In 2) the scale-2nd is sharped. Is this satisfactory?—Likewise the flat scale-2nd in 3)?—Is the flat scale-7th in 4) permissible if the chord is to sound like a Dominant?—Can we tolerate the alteration of the root, as in 5)?

Composers ordinarily limit, in practice, the alterations applicable to the V to the raising or lowering of the scale-2nd only, or both together in the V_2, as in 6) and 7).

Examine the action of the chromatically altered tone: in which direction does a *raised* tone tend to go?—a *lowered* tone?—May the altered tone be

doubled?—May it skip?—Make as many experiments as you like in seeking the answers to these questions, and *repeat them for every chromatically altered chord studied later.*

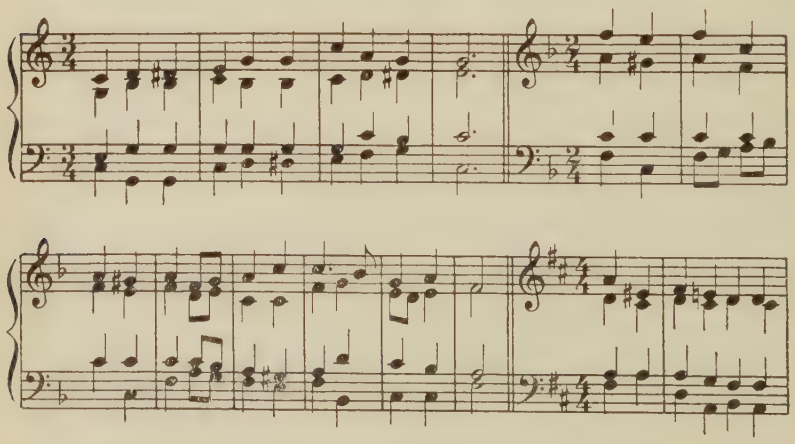
Is the action of the altered tone harmonic or melodic? How far does it tend to move?—Is there any reason for the preference shown here for regarding the altered tone as a member of the scale rather than as a member of the chord, i.e., for describing it in the above instances as scale-2nd rather than as chord-5th? To be sure, the *sound* of the altered chord is, in 2), that of an augmented triad. But what is the *sound* in 3)?—In 6) and 7)?—Can you find these sounds among the species of color-chords listed on p. 33?

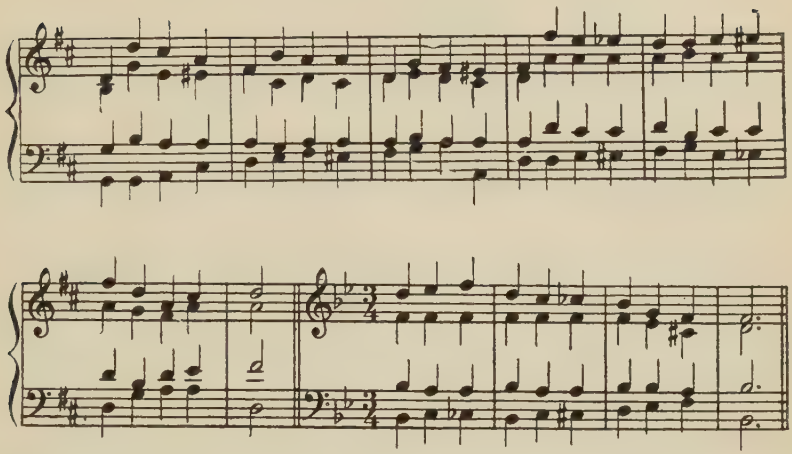
Since but one tone of the V triad is commonly altered, the symbolization of the chromatic changes involved becomes very simple. Instead of V with $\acute{2}$, V with $\grave{2}$, or V_2 with both $\acute{2}$ and $\grave{2}$, we may use $\overset{\vee}{V}$, $\hat{V}$, and $\overset{\vee\wedge}{V}_2$. These are pronounced 'Five with a sharp'; 'Five with a flat'; and 'Five-two with a sharp and a flat.'

Are these alterations of the V possible in minor?—In the V_1 in major?—Is a *single* alteration possible in the V_2 in major?

Keyboard Harmony: Play the succession I-V-I with all possible alterations of the V, all possible inversions of the chords, and all possible Sopranos.

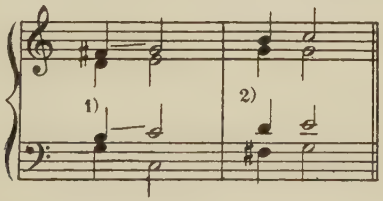
Dictation: Till the Review section, the exercises for dictation are kept purposely brief and there is no modulation.





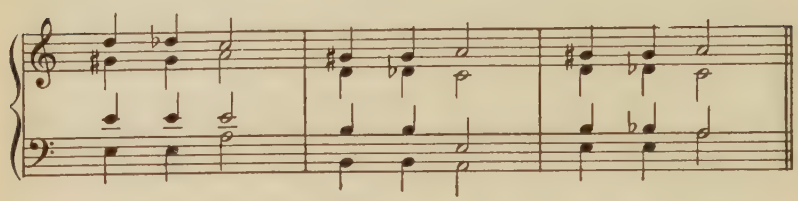
Change the signature of the last exercise to five flats and play in *bb*. Is V_2 effective in minor? Are the other altered chords possible as dominants?

Alterations in the V⁷ and the VII. The V⁷ and the VII with dominant function contain 4 of the scale in addition to the tones already examined. This is the chord-7th of the V⁷, and it is the established custom among theorists to prohibit the chromatic alteration of this tone when it is a regular chord-member. If raised, it cannot have its characteristic resolution to 3 of the scale, nor are the following resolutions satisfactory:



The succession in 1) involves particularly ugly parallel fifths. What is the tendency of the dissonance in 2)? Is it fulfilled or thwarted?

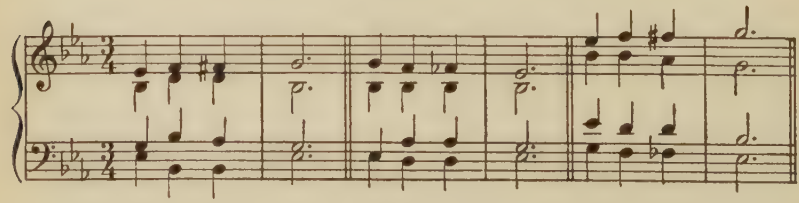
But examine the following:

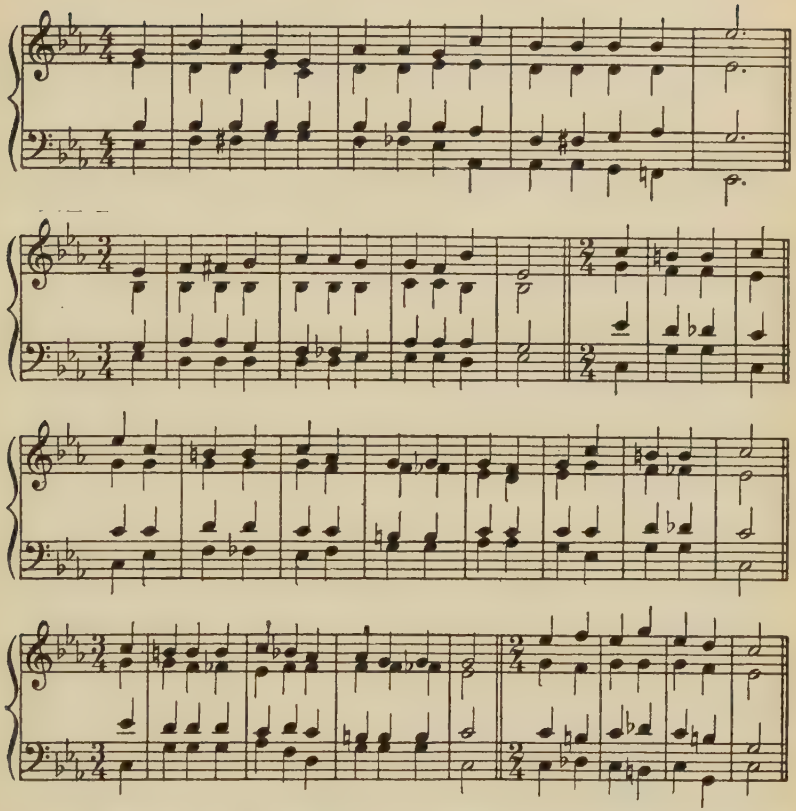


May $\acute{V}^7$ or $\acute{vii}_1$ in minor contain $\grave{4}$?—May the former also contain $\grave{2}$?

We shall consistently symbolize the *most common* chromatic changes in a chord by *the simple acute or grave accent, placed* **beneath** *the Roman numeral.* Thus, when only the 2nd scale-step is lowered in the V^7, the symbol will be $\underset{\backslash}{V}^7$. And when both 2 and 4 are lowered, the symbol will be $\underset{\backslash\backslash}{\acute{V}}^7$ ('Five-seven-acute with two flats,' minor mode only). But if 4 be lowered without also lowering 2, the symbol is $\acute{V}^7$ with $\grave{4}$ written underneath ('Five-seven-acute with four-flat'). Students who are accustomed to use the sharps and flats of musical notation for this purpose, or who prefer to do so, may be allowed complete discretion, though for stenographic purposes $\underset{\backslash\backslash}{\acute{V}}^7$ is briefer than $\underset{\flat\flat}{\acute{V}}^7$.

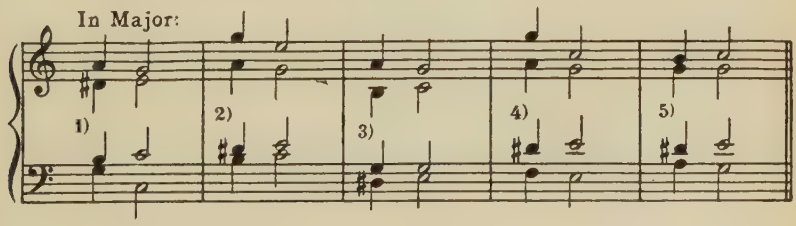
Dictation and Keyboard Harmony: The briefer exercises given here may be used both for keyboard work and for dictation. They should regularly be transposed at the keyboard as well as tried in the opposite mode. The signature of three flats applies throughout.



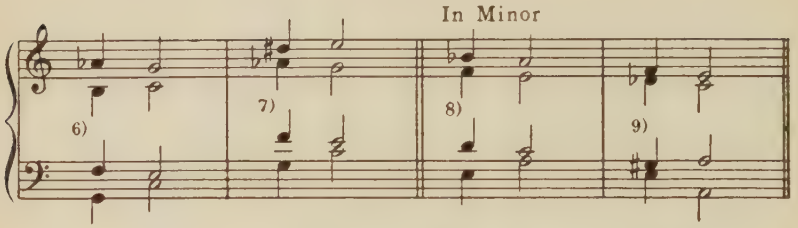


Is the resolution to VI possible for all dominant-sevenths with altered tones?

Alterations in the V⁹ and VII⁷. Would you consider *all* the following dominant-ninths admissible as chord-forms? If not, how would you describe them?



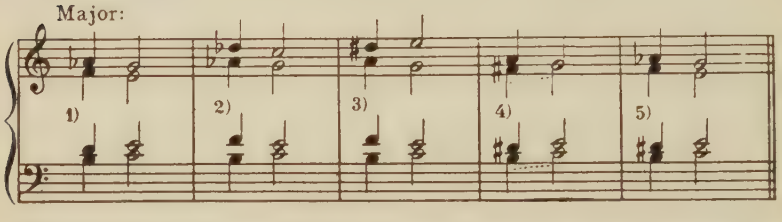
In Minor



Does V̀⁹ in minor involve the same altered tone as V̀⁹ in major?—How is the V́⁹ symbolized in 9)?—Are any other alterations possible?

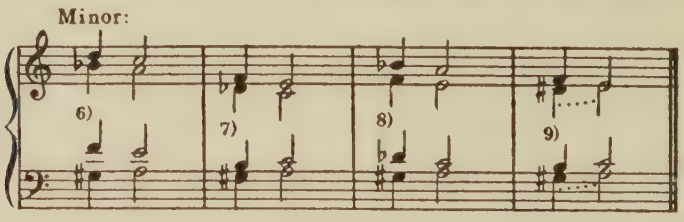
The following are common alterations in the VII⁷:—

Major:



Write the correct symbol for each VII⁷.—Could G, as true harmonic root, be placed under each VII⁷?—Why are not the alterations in V⁹, as previously given for major, equal in number to those of VII⁷ in four-part harmony?—Are all the inversions acceptable in each case?—What is the species symbol of each VII⁷, as altered?—Are parallel fifths objectionable when they move chromatically?

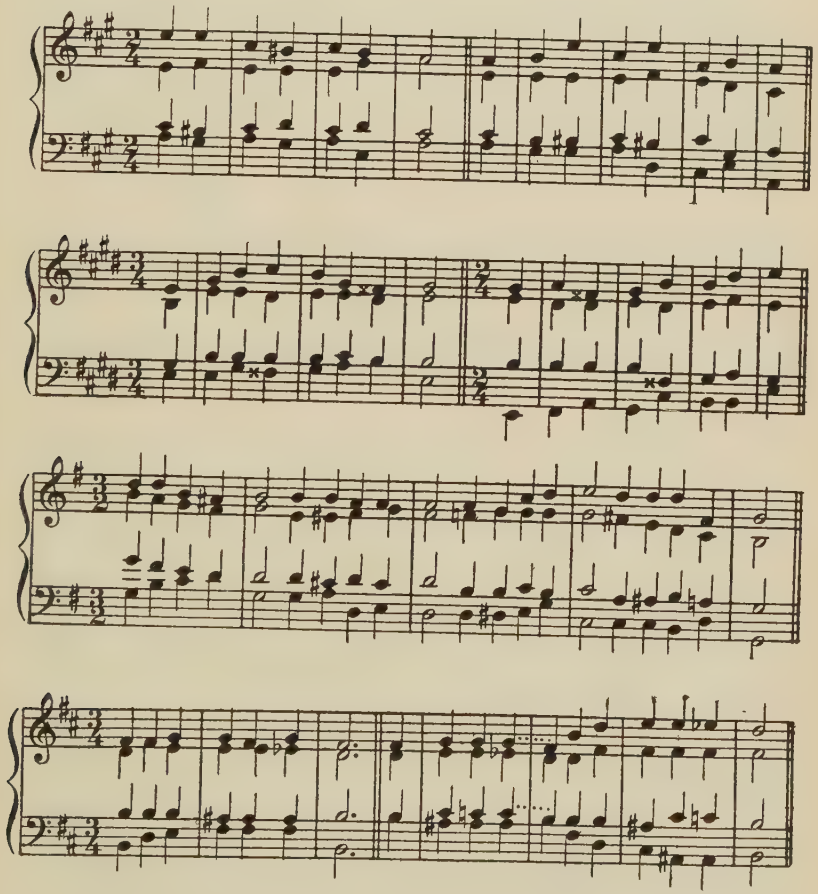
Minor:

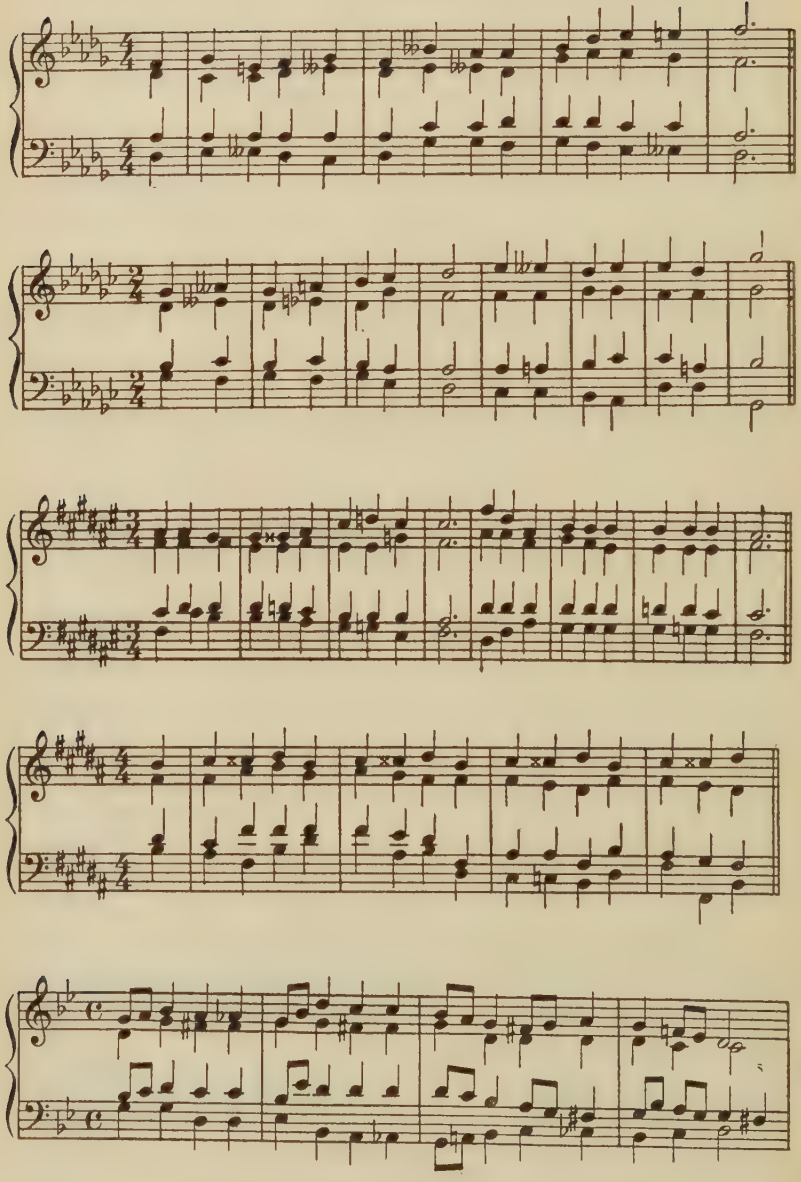


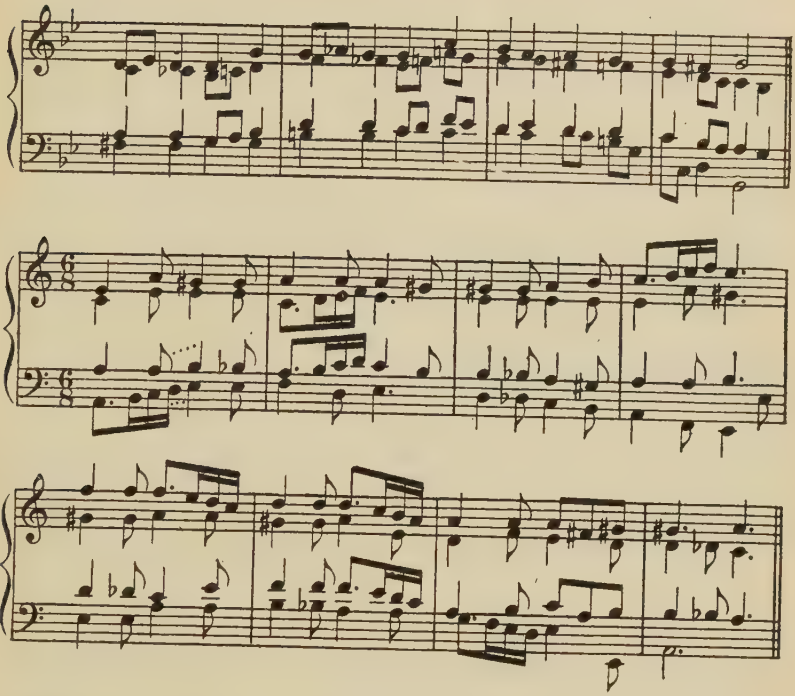
Does V̀́II⁷ in minor involve the same altered tone as V̀II⁷ in major?—How is the V́II⁷ symbolized in 7)?—in 8)?—Could E, as true harmonic root, be present in 5-part harmony?—May the inversions of V́II⁷ be used with each typical alteration?—What is the species symbol of each V́II⁷, as altered?—Why are no alterations given as being common in 'grave' dominant chords?

Keyboard Harmony: Play the following successions in all keys, with all possible sopranos and inversions. *Major*: V̀⁹-I; vIÌ⁷-I; *Minor*: V́⁹-I; vIÍ⁷-I; *Major*: V̀⁹-I; vIÌ⁷-I; *Minor*: V̀⁷-I; V̀⁹-I; vIÍ⁷-I; *Major*: vIÌ⁷-I; V̀⁹-I; vIÌ⁷-I; *Minor*: vIÍ⁷-I.

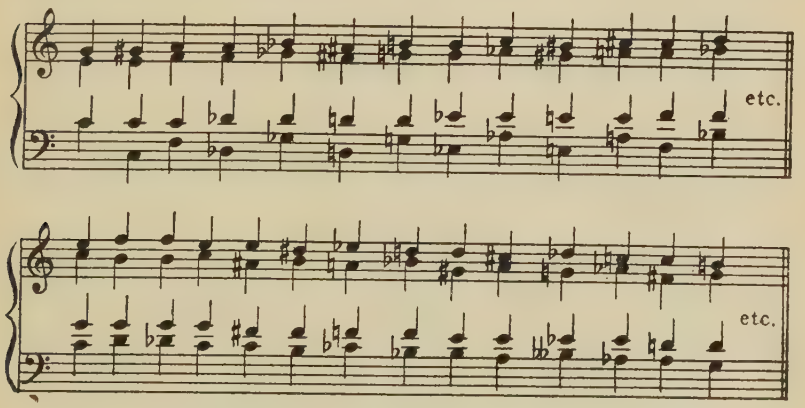
Dictation: Review of Alterations in Chords with Dominant Function.





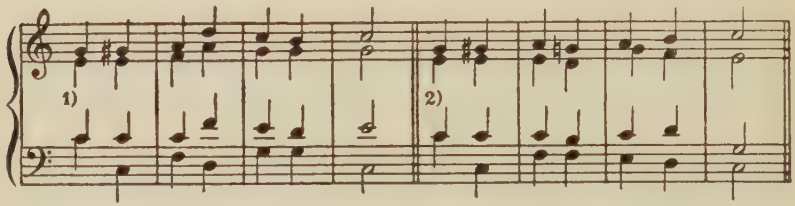


Modulation by means of Dominant Chords with Altered Tones. Examine these sequences:



It will be perceived that change of key is effected with singular facility when the heightened melodic activity of a chromatic tone is added to a chord already possessing strong tendency.

So powerful is this tendency that it occasionally creates a dilemma for the analyst:

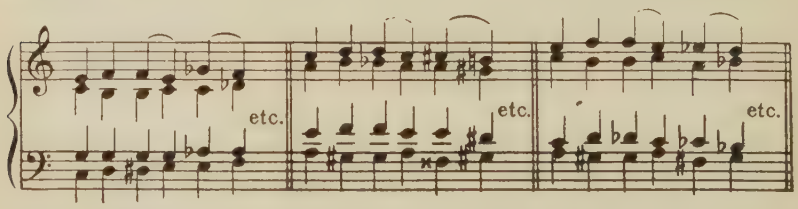


Are the first three chords of 1) to be analyzed as *C*: I *F*: V|I or as *C*: I I|IV?—Many theorists do not permit the second analysis, and declare that there can be no chromatic alteration in the I. What is your opinion?—How would you analyze the first three chords of 2)?

Review what is said of transient modulation in connection with the chorale *'Valet will ich dir geben'* on p. 29. Is it your opinion that *all* transient modulations may be regarded as successions involving a chromatic chord?

Returning to our modulatory sequences, note that the modulation is pivotal. In the first sequence, a tone in the I of the old key becomes a *chromatically altered tone* in the V of the new. How does the modulation happen in the second sequence?

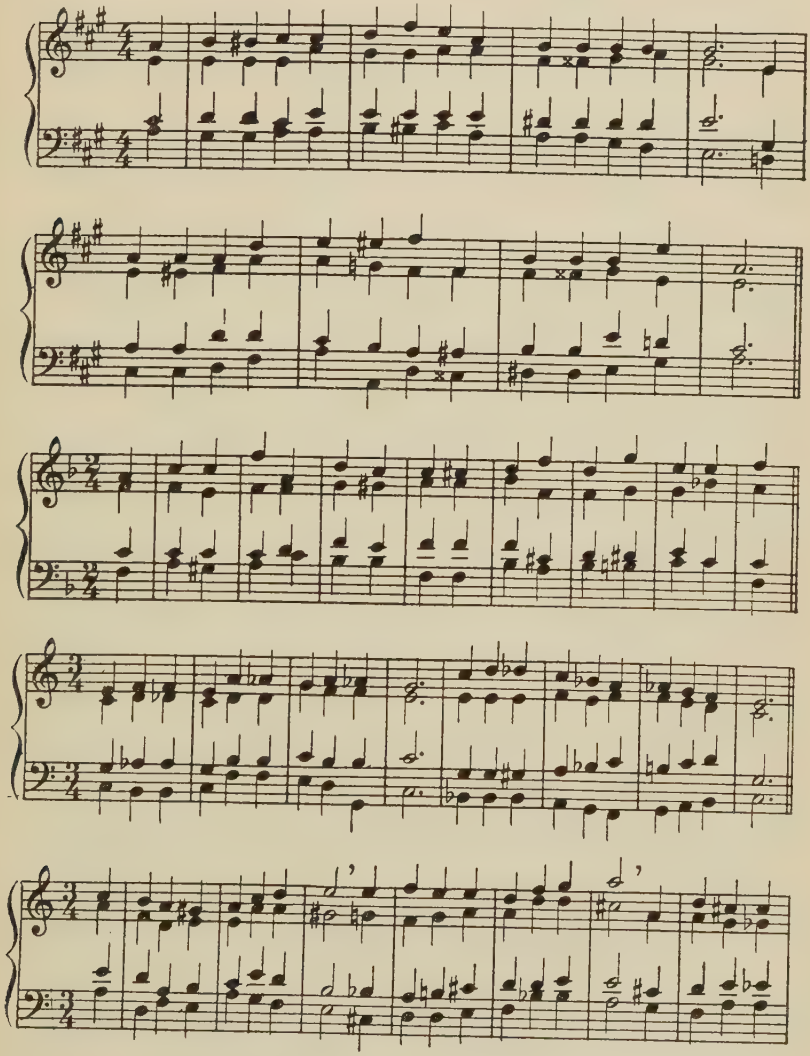
Keyboard Harmony: Work out the following modulatory sequences:

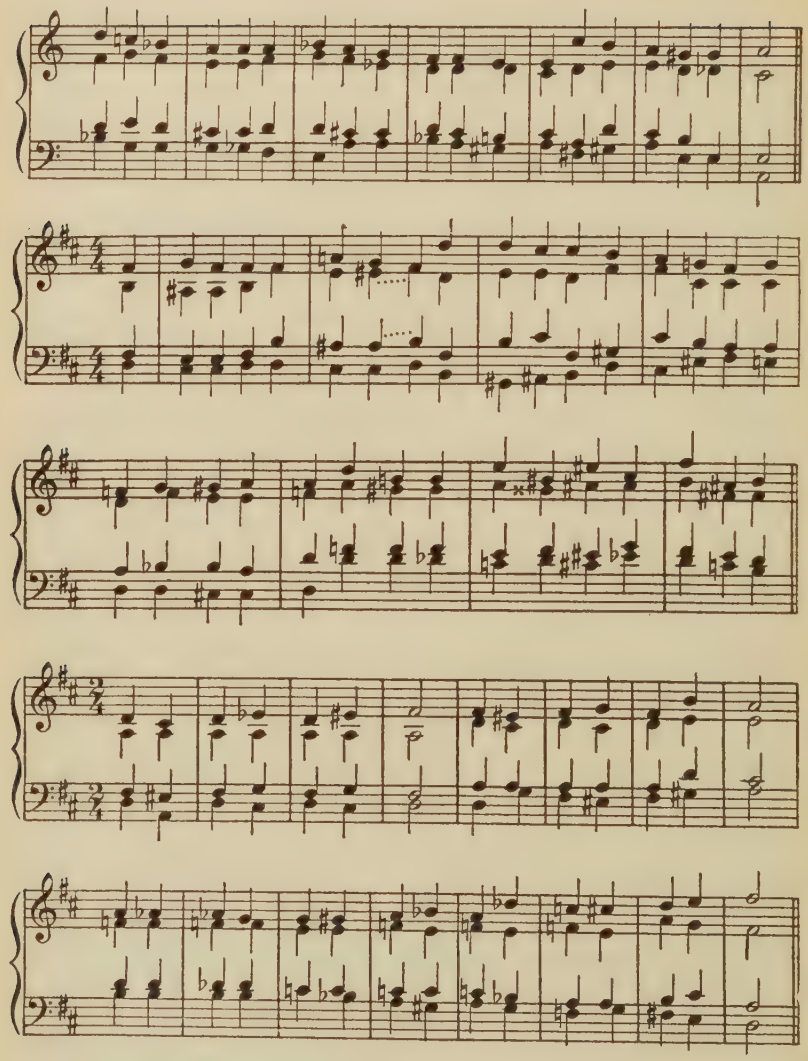


In this last sequence, is the modulation pivotal?—How would you describe it?

Exercise: Invent other modulatory sequences using dominant chords with altered tones.

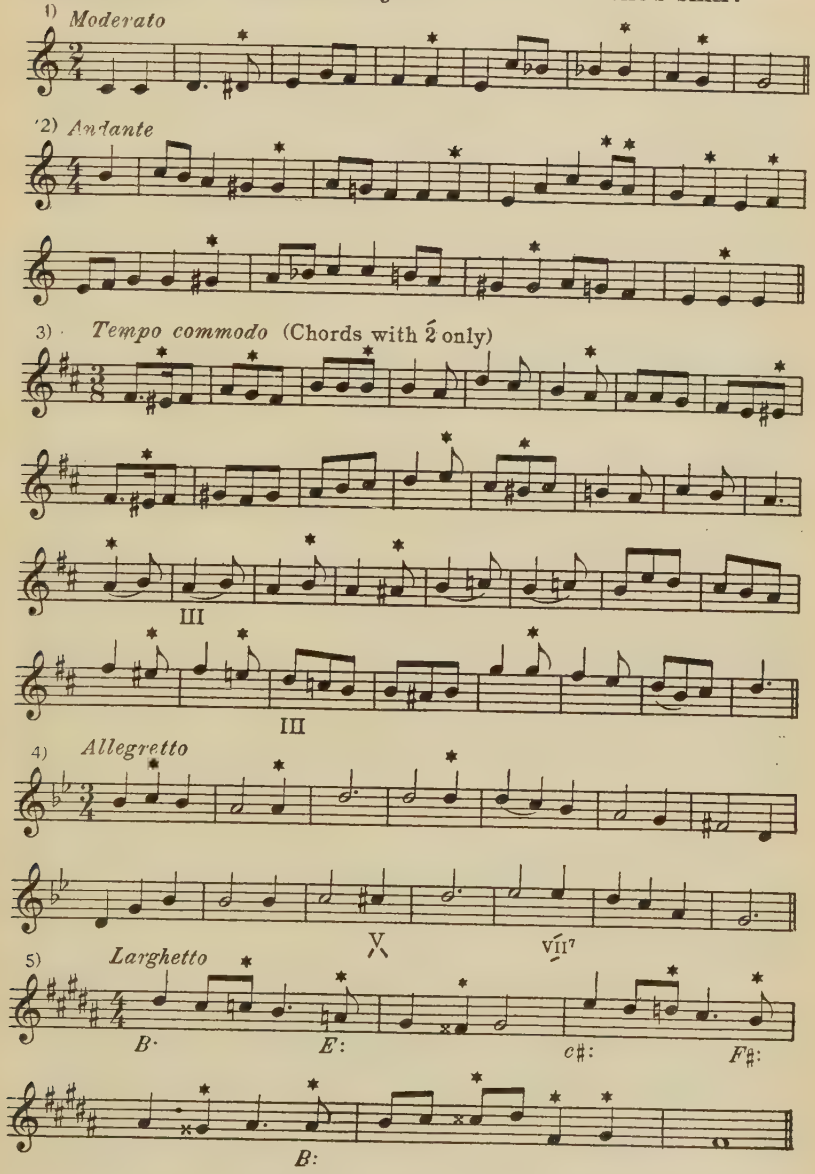
Dictation: Review of Dominant Chords with Altered Tones, occasionally employing these as modulatory agents.





Melodies to be harmonized: The 'realization' of exercises for dictation composed by the instructor is ordinarily sufficient to enable the student to master the technic of chromatics. But

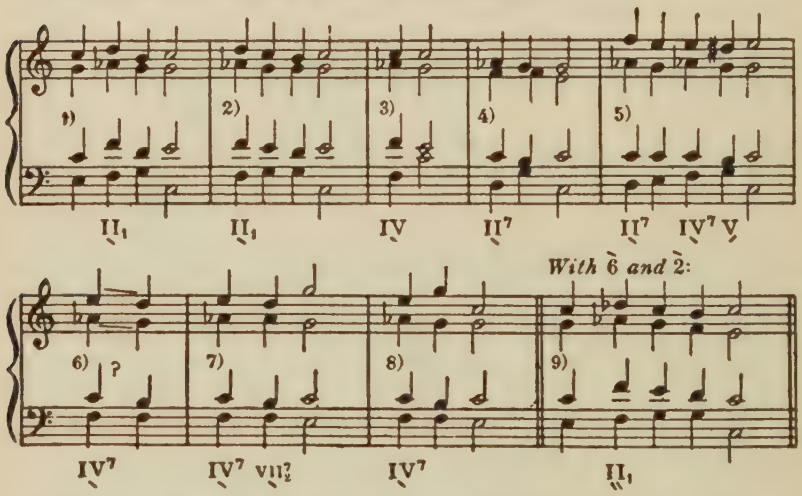
since dictation takes more time than is always available, these melodies may be used as subjects for the student's skill:



ALTERATIONS OF TONES IN SECONDARY CHORDS

For the sake of brevity and convenience in handling so extensive a subject as chromatic harmony, we shall group, as *secondary* chords, all chord-forms to be found in the II^9 with the exception of the VI triad, just as we have previously grouped, as dominant chords, all forms that are in the V^9 with the exception of the II. The following successions represent these chords with their most common alterations and resolutions.

SECONDARY CHORDS WITH $\grave{6}$. (Major):



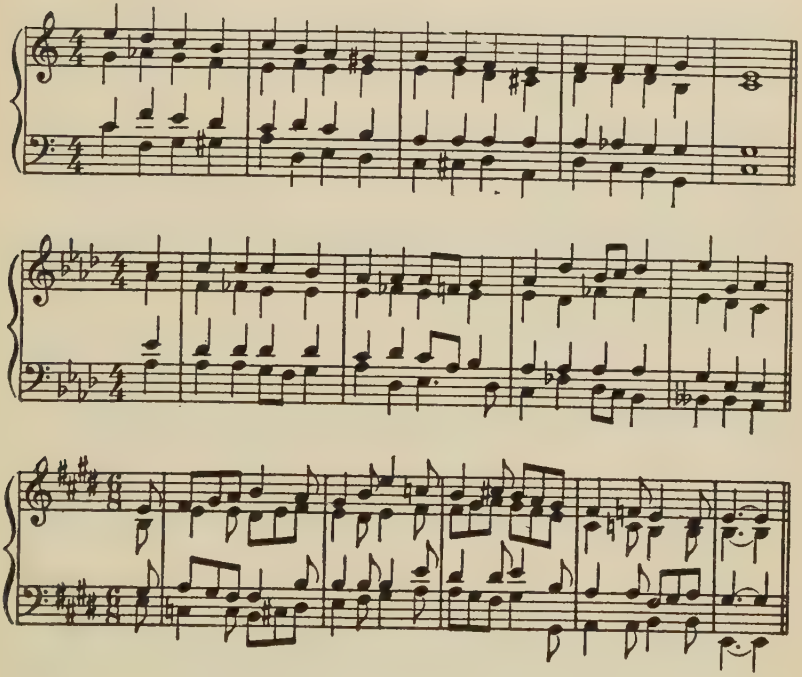
In general, does the chromatic alteration affect the customary resolution of a chord?—Are all the successions valid without their accidentals?—What is the difficulty in 6), and with the IV^7 in each instance?—May it resolve directly to the I?—

The II_1 is found in minor especially, where but one 'flat' is necessary, and has long been termed the 'Neapolitan Sixth.'

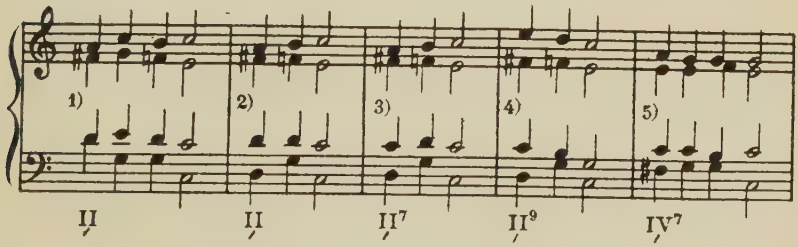
Keyboard Harmony: Play and resolve the Secondary

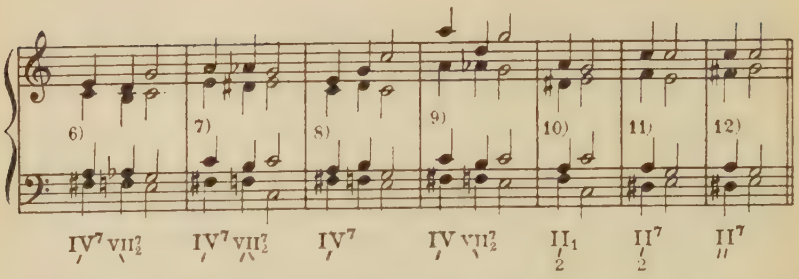
Chords with $\grave{6}$ in all major keys and all possible positions. Can 6 be lowered in the minor mode?

Dictation:



SECONDARY CHORDS WITH RAISED TONES ($\acute{4}$, $\acute{2}$, and both $\acute{4}$ and $\acute{2}$) (Major)

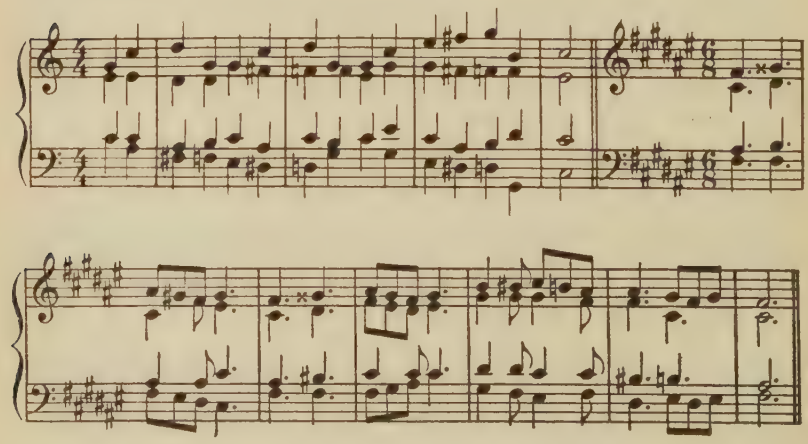


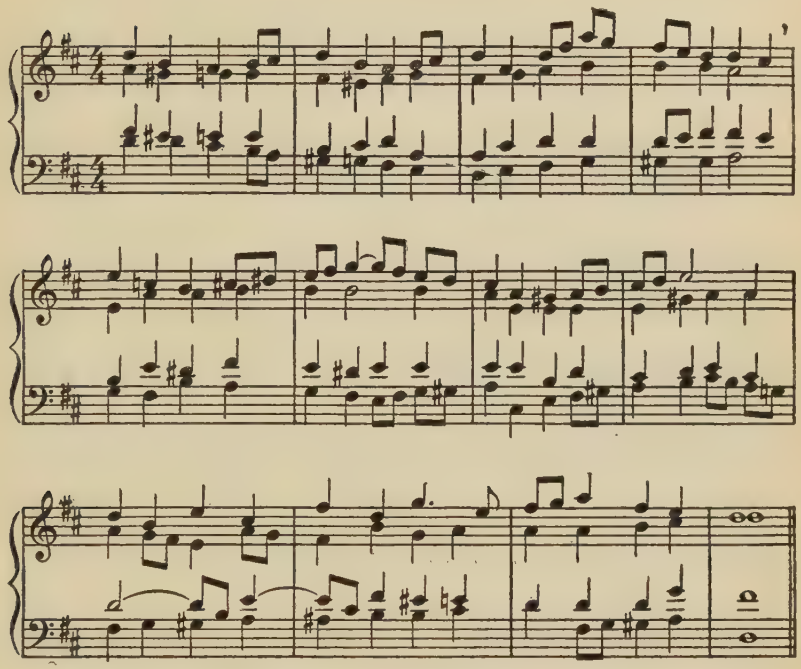


Describe the two possibilities of movement for $\hat{4}$ in secondary chords. Do you perceive why composers, as a matter of habit, are apt to spell the descending chromatic tone between 5 and 4 as $\hat{4}$ rather than $\flat\hat{5}$?—May all II chords with $\hat{4}$ be resolved either to a I or a V?—Compare 6) and 9).—Note in 10) and 11) that the $\hat{2}$ has to be *specified* when it is the only raised tone. Why?—Is a II triad with two sharps possible?—A II°?

Keyboard Harmony: Play and resolve all the secondary chords with raised tones. Experiment with the possibilities of inversion. Resolve occasionally to dominant chords with chromatic alterations, as in 6) and 7) above.

Dictation:

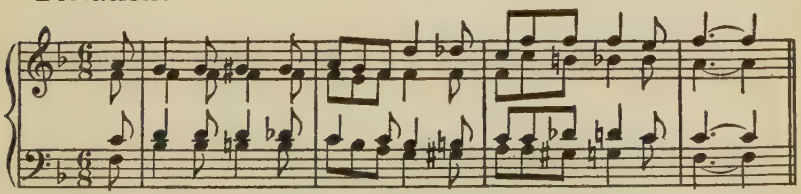




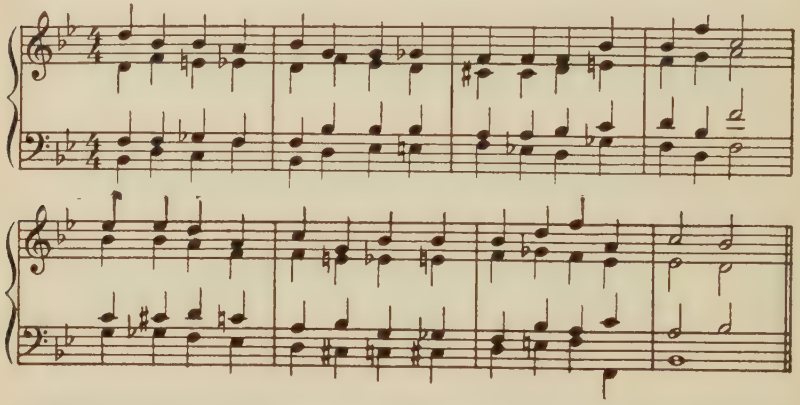
SECONDARY CHORDS WITH RAISED TONES AND $\grave{6}$ (Major)

Keyboard Harmony: Experiment at the keyboard with secondary chords in which $\grave{6}$ is added to $\acute{4}$, $\acute{2}$, or both $\acute{4}$ and $\acute{2}$ together. In the last case, this would mean altering *every tone* of the II triad. Is this practical in four-part harmony?

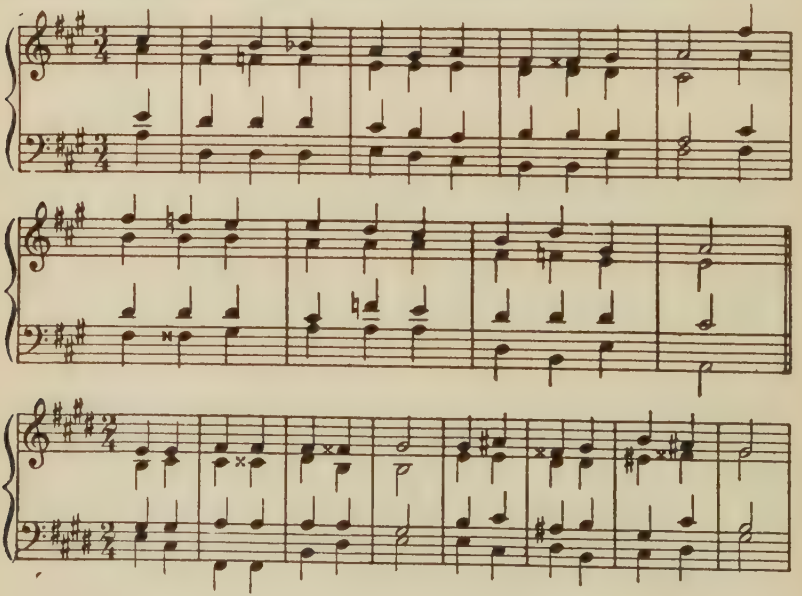
Dictation:

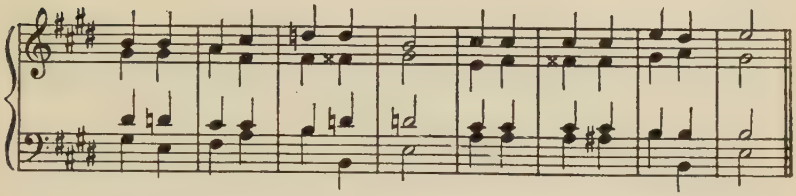


What do you say to the spelling of the fourth chord from the end? It is identical in interior relationship with the last chord in measure 2. Is its function the same? Ought it not to be spelled as an altered VI^7? Why is it not so spelled?

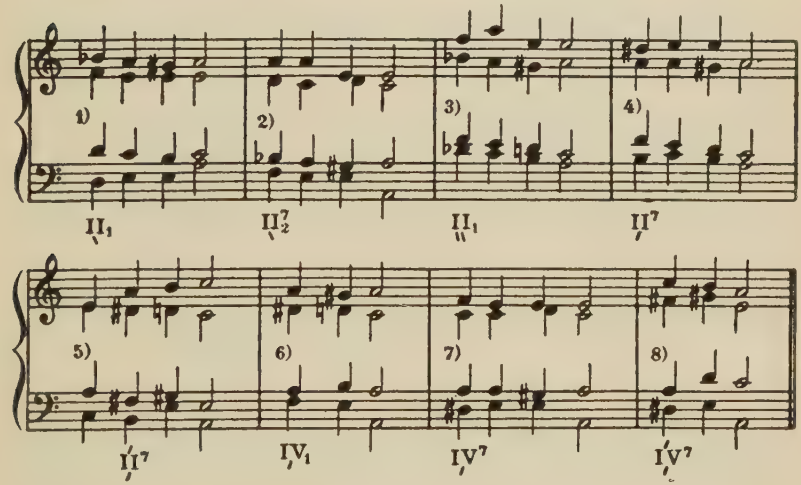


The following exercises contain certain special instances of alterations in secondary chords: examine them critically.—





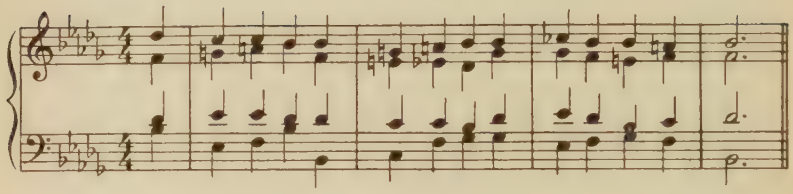
Minor Mode: Alterations in Secondary Chords.



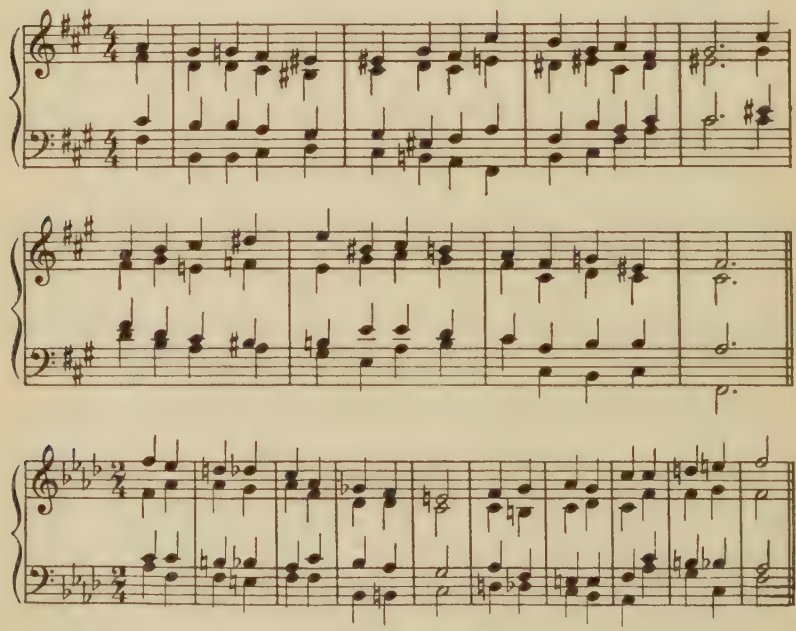
Observe especially the symbols $\acute{II}^7$ and $\acute{IV}^7$ (pron. 'Two- or Four-Seven Acute with a sharp'). These are alterations of the diatonic chords with 6 'acute.' If the movement of that tone were definitely chromatic, there would be no objection to using the symbols II''^7 and IV''^7.

Can you add any instances to the number of successions as given?—Can you employ the inverted secondary chords in fundamental position or in another inversion?—Compare the chords with identical symbols in the major mode.

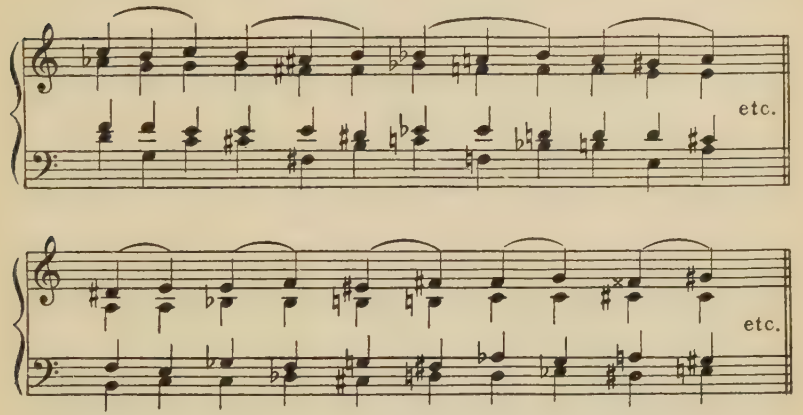
Dictation:



The third chord from the end, in the preceding exercise, might be considered as IV_1 in $b\flat$ or as vii_1 initiating a transient modulation to *F*. The use of the chromatic interpretation, (the former), is recommended in this and all similar instances.



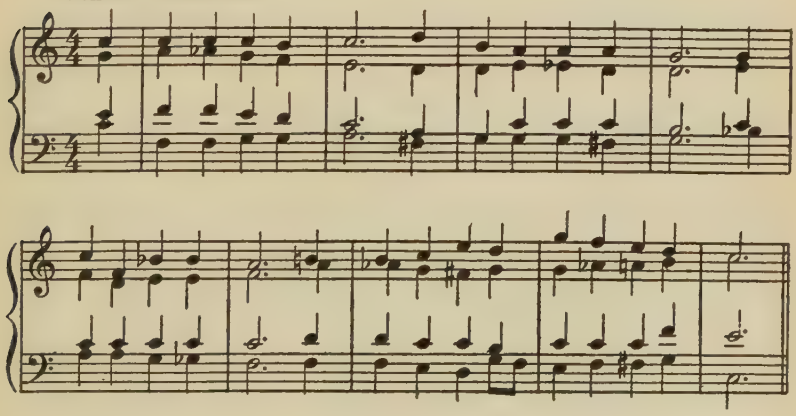
Modulation through Secondary Chords with Altered Tones. Examine these modulatory sequences:

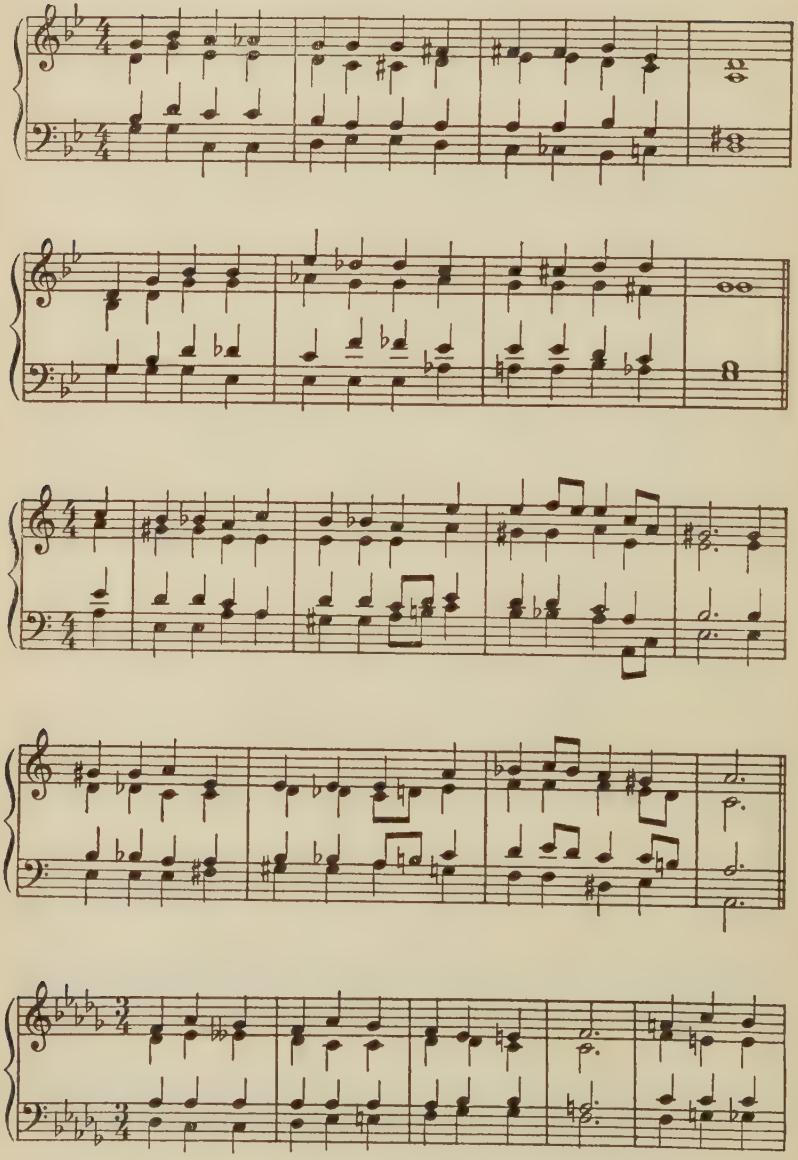


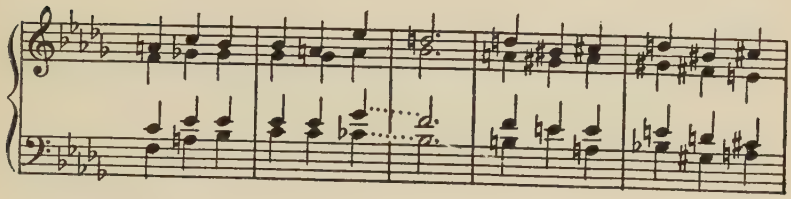
Complete each of these sequences, continuing till the return of the original key. Invent others, employing a secondary chord with altered tones as the modulatory agent.

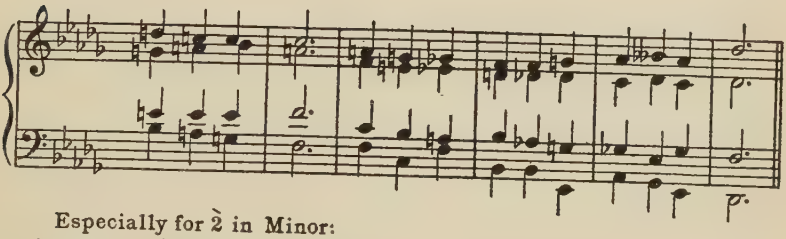
Dictation: Exercises employing altered tones in Dominant and Secondary chords, with certain of these used occasionally as modulatory agents. (Review)

General Exercises:

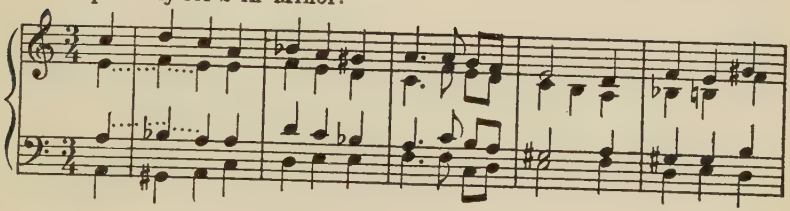


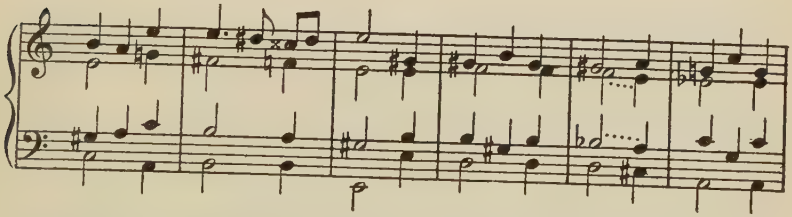


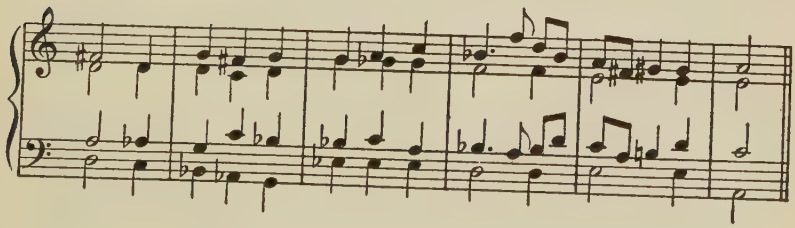




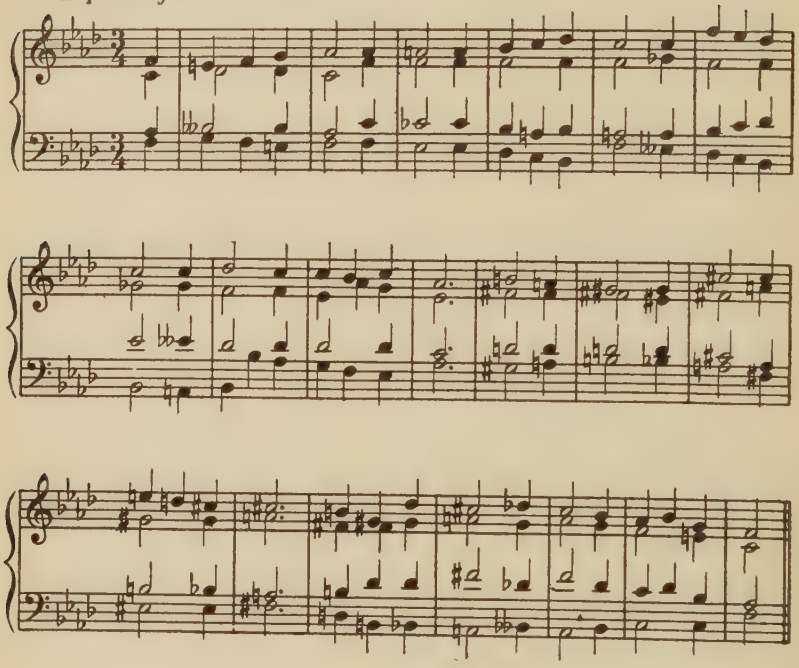
Especially for $\hat{2}$ in Minor:



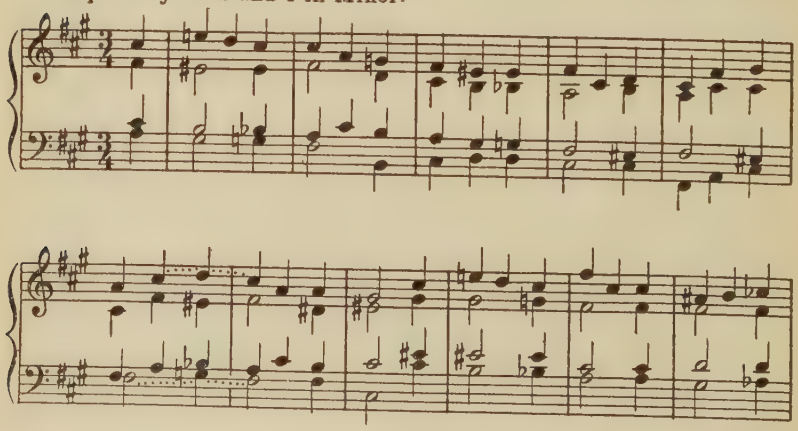


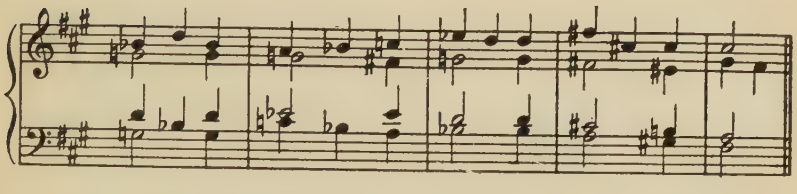


Especially for $\hat{4}$ in Minor:

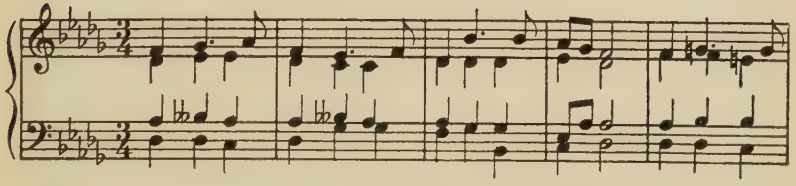


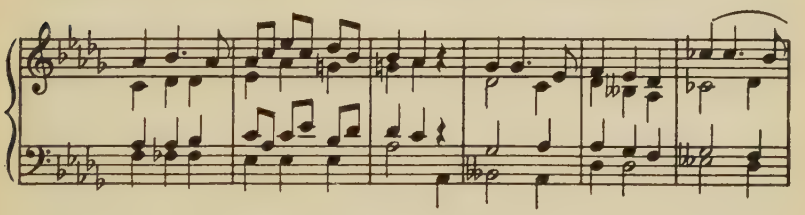
Especially for $\hat{2}$ and $\hat{4}$ in Minor:

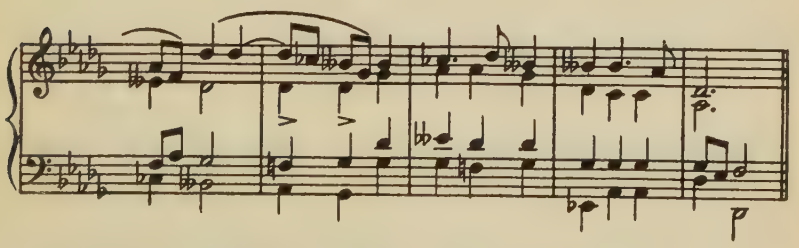




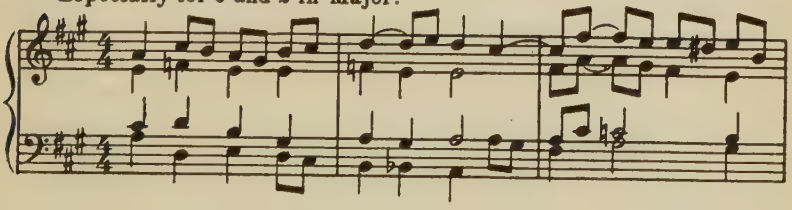
Especially for $\tilde{6}$ in Major:

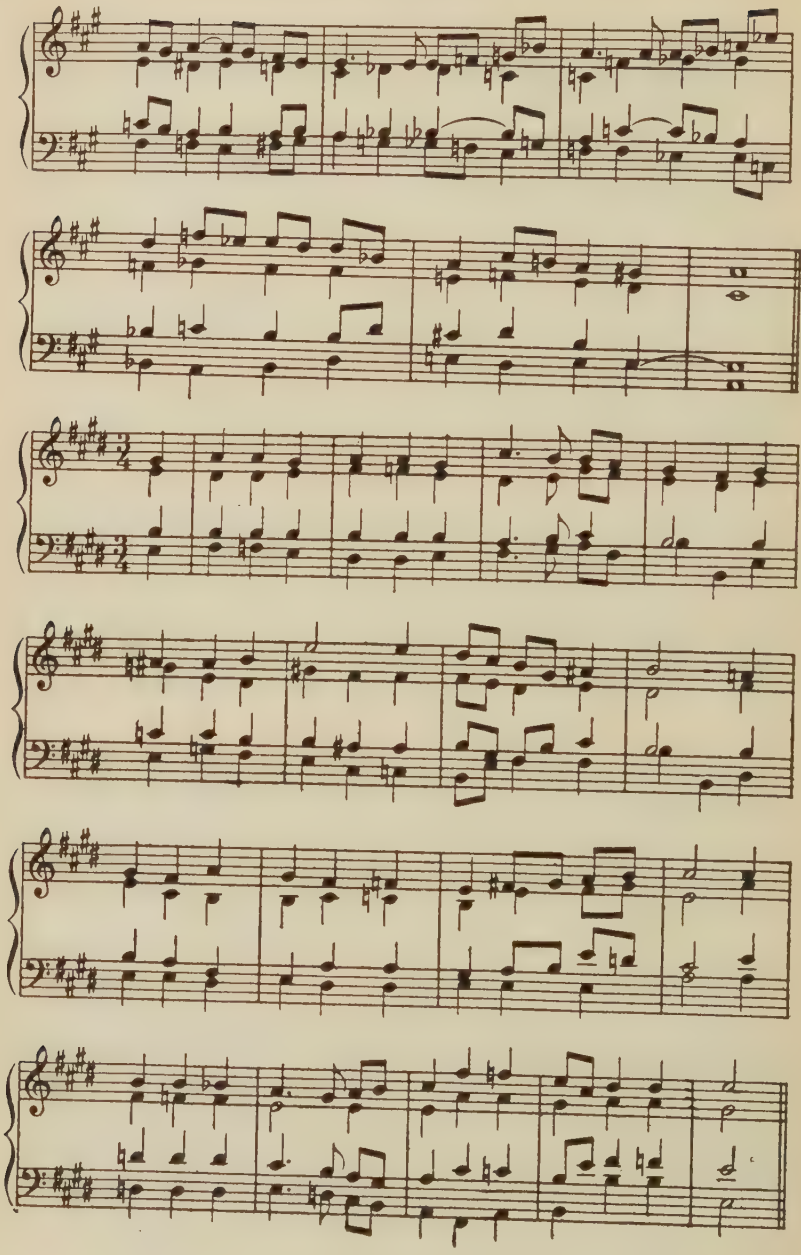




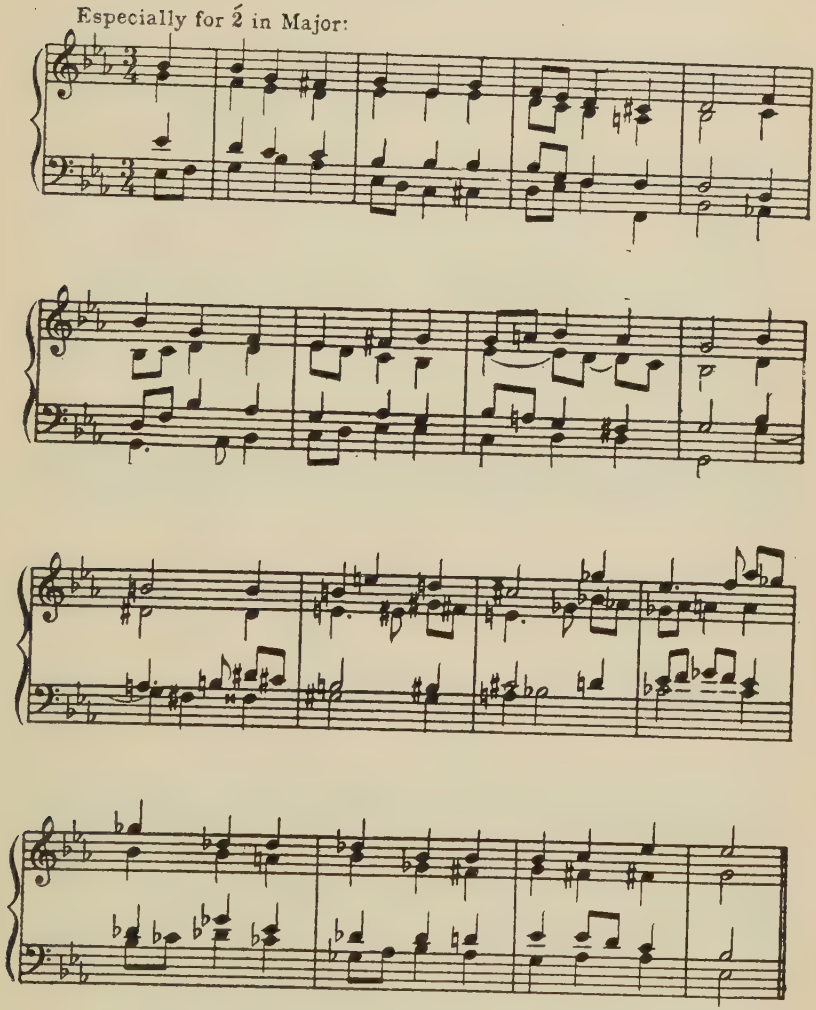


Especially for $\tilde{6}$ and $\tilde{2}$ in Major:

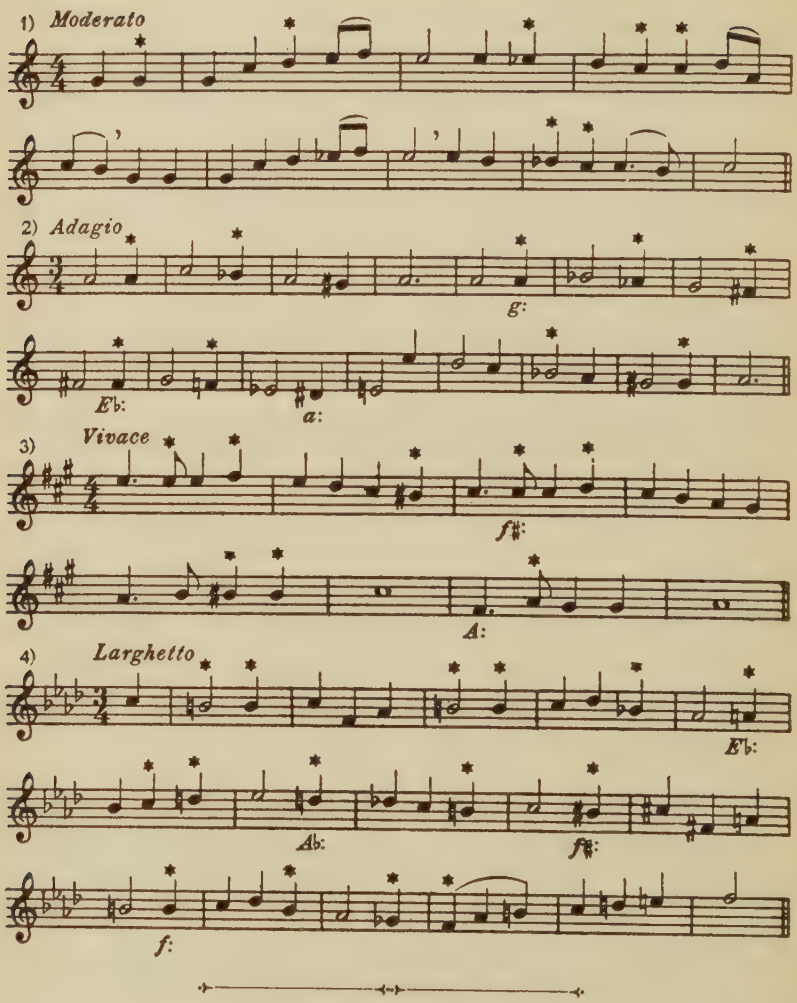




Especially for $\hat{2}$ in Major:



Melodies to be harmonized: The starred tones may be set by dominant or secondary chords with altered tones. Inharmonic tones may be freely employed.

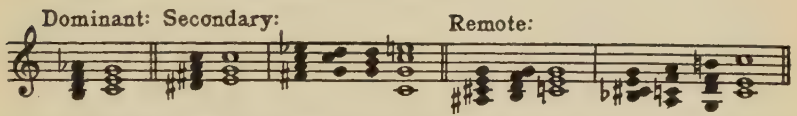


THE CHORD OF THE DIMINISHED SEVENTH (75)

Analysis of the chord-structure of musical compositions from the period of Haydn, Mozart, and Beethoven reveals the importance in their harmonic scheme of the chord of the diminished

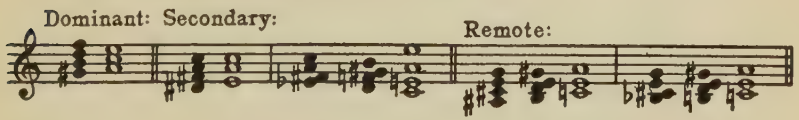
seventh as a vehicle of intense emotion. Time and again in the sonatas of Beethoven, for example, the climactic chord is a diminished seventh, secondary in major, dominant in minor, in the latter mode frequently appearing as complete dominant ninth. Before proceeding to a consideration of chromatic tones in the remoter chords of a key, we shall, in view of the considerable importance of the tonal combination known as the diminished seventh-chord, examine the various functions such a combination may have in a diatonic key.

The Diminished Seventh in Major:



Note that none of these chords has any pitch in common with either of the others and that the three, however spelled, represent all the possibilities of their special structure in any key. The important tone of the diminished seventh-chord with dominant function is 7; with secondary function, it is 1; and the distinguishing tone of the remoter chord is 5. This is true also in the minor mode. The dominant and secondary diminished sevenths in both modes have already been met with as vii^7 and II^7 in major, and as vii^7 and IV^7 or IV^7 in minor.

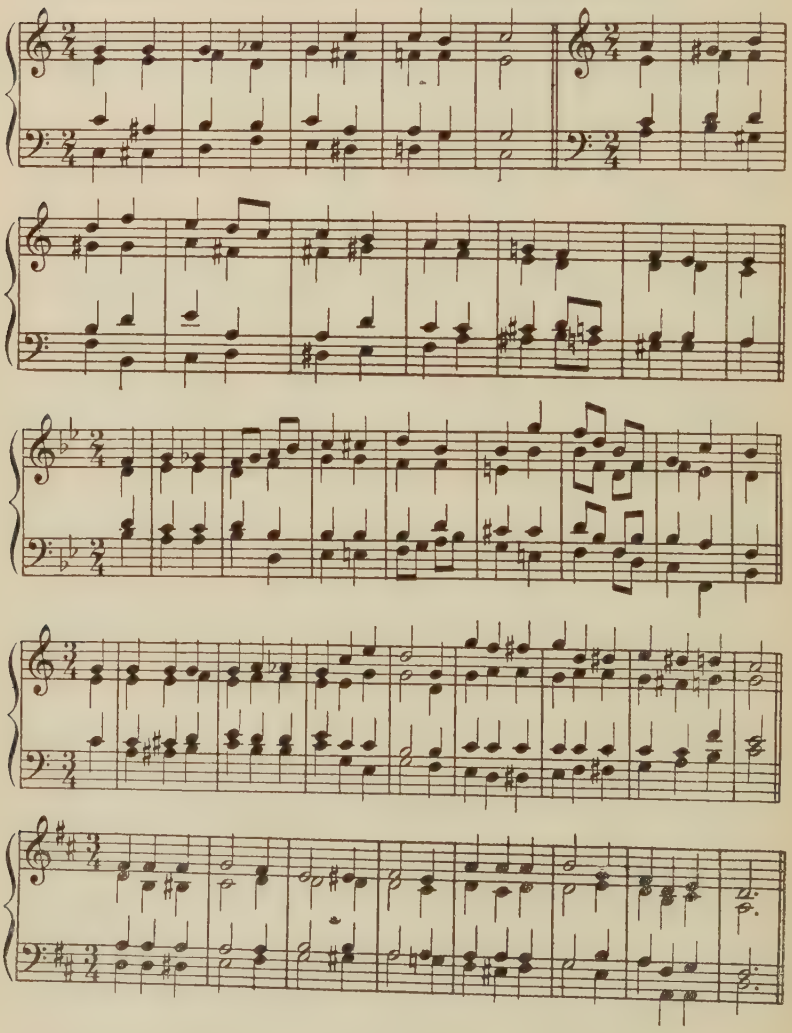
The Diminished Seventh in Minor:

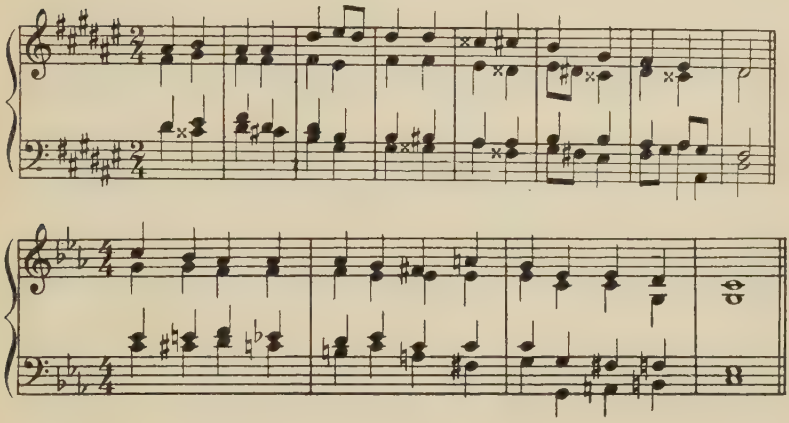


The remote chord is practically never spelled so as to show its true function. To bring it into line with the usage in major, it should be spelled as a 'Six-seven acute with three sharps' (G in the first notation becoming F$^{\times}$) but this would be pushing

logic out of bounds. The sensible course is to symbolize it with the color-chord figure 75, indicating the Bass-note (see p. 33), and to write it in the manner which involves least accidentals.

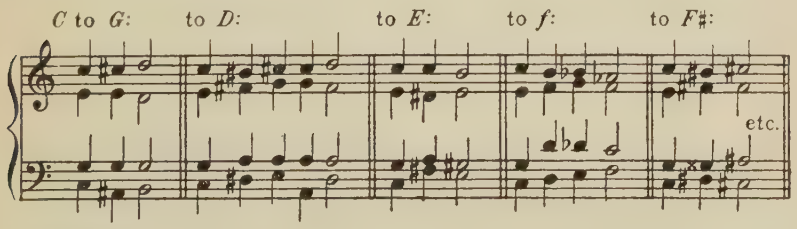
Dictation: Chords of the Diminished Seventh—



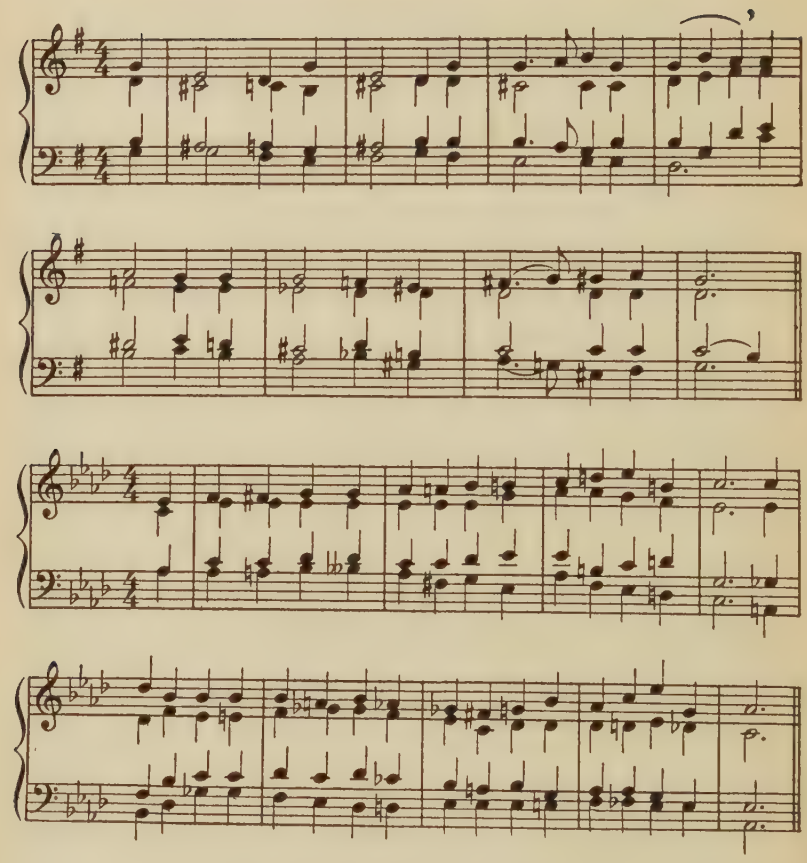


Modulation through a Chord of the Diminished Seventh.

The chord of the diminished seventh, on account of the ambiguity of its structure, may be used as a modulatory agent from any key to any other. Any note of the scale, diatonic or chromatic, may be used as a pivot, or the diminished seventh may enter freely, provided the voice-leading be smooth. So easy is this method of modulation that it has been much abused, and the modern composer either avoids it altogether or dresses it up with inharmonic tones. Here are a few of the multiple possibilities:



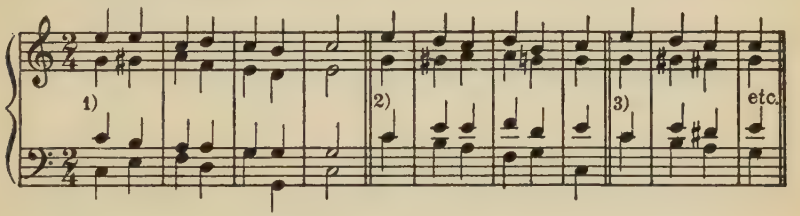
Dictation: As the diminished seventh-chord occurs frequently as modulatory agent in the exercises given under other headings, but two further examples are appended.—

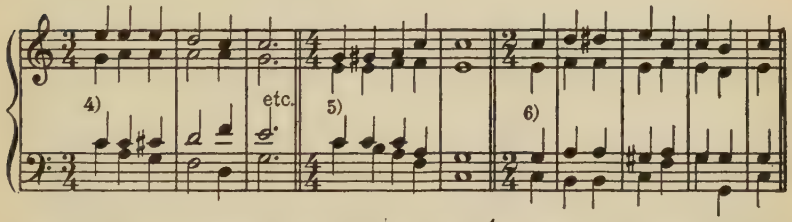


ALTERATIONS IN REMOTER CHORDS

With the exception of the major VI^7 and its counterpart in minor, alterations in chords on remoter roots than 2 present merely a problem in analysis. It is usually at the discretion of the student whether to give them a remote function, or to describe their effect as one of transient modulation, or to assign

them a status as color-chords. In the case of transient modulation, the function ceases, of course, to be remote.—Examine the following successions:

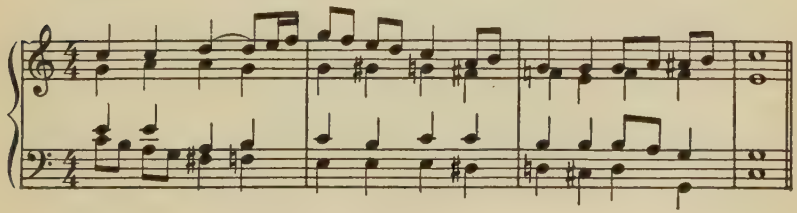


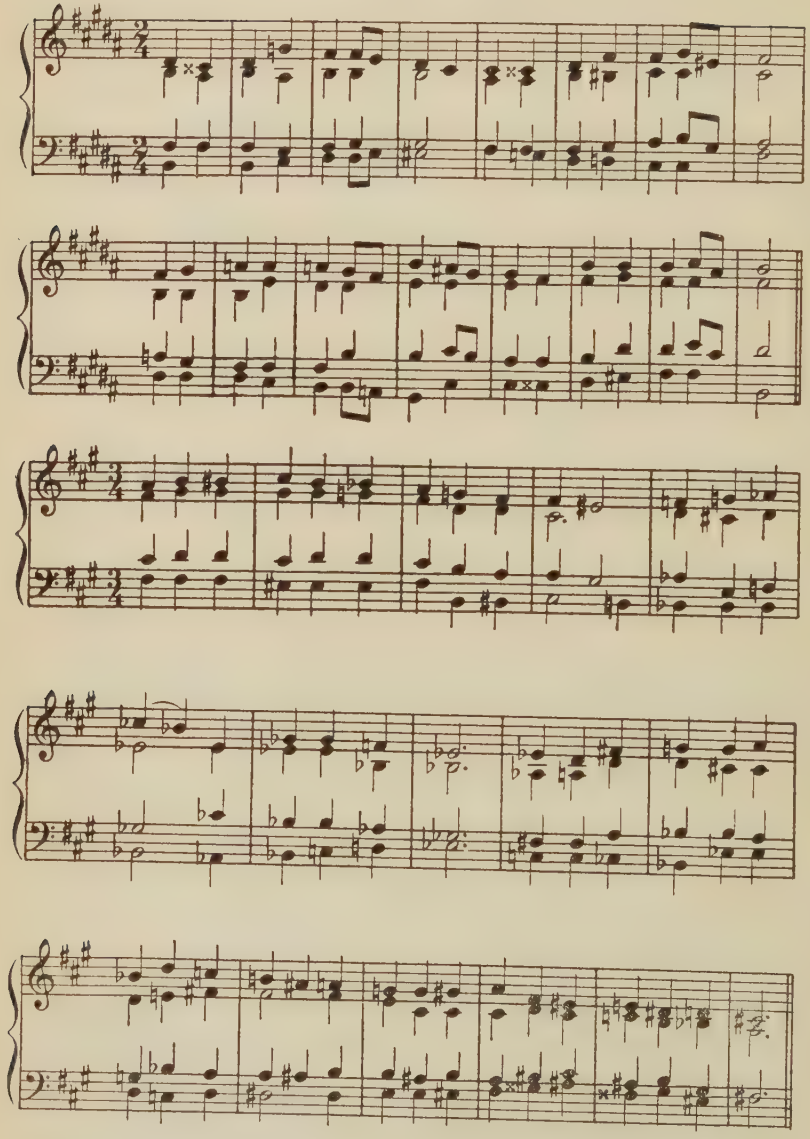


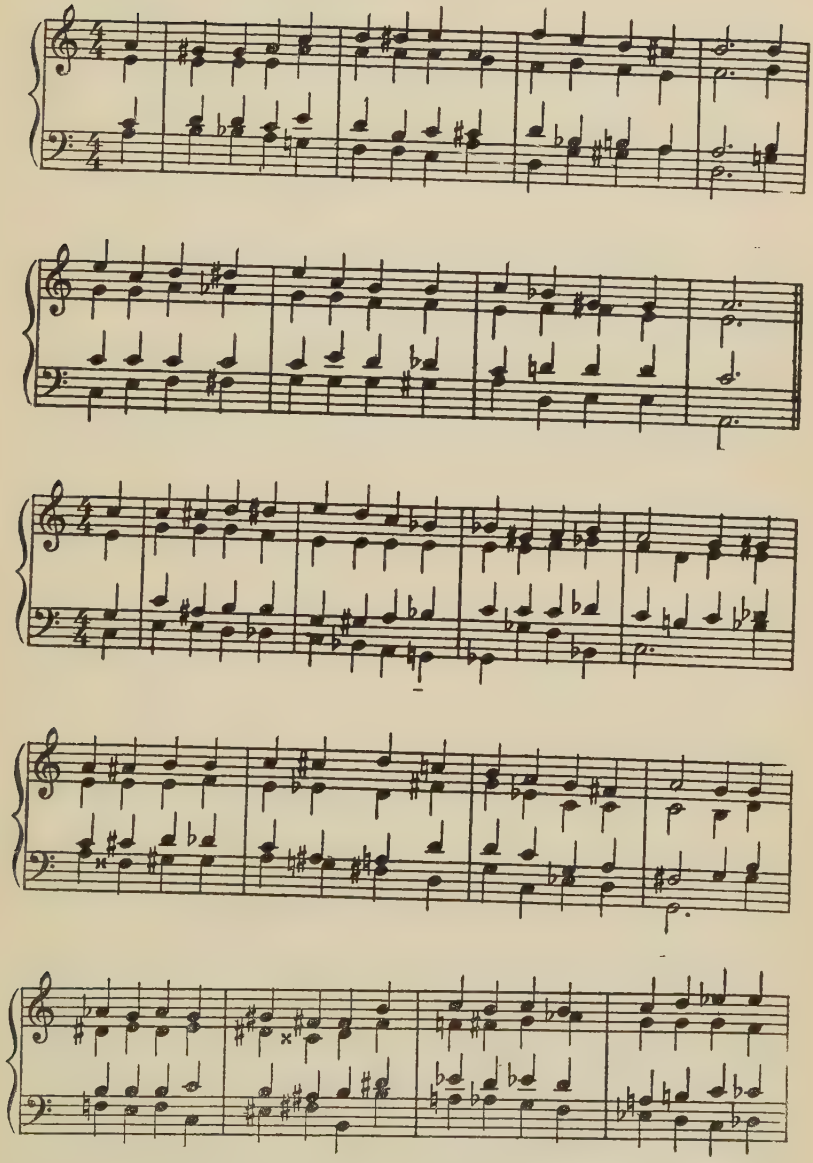
In 1) is the chromatic chord $\underset{\prime}{\text{III}}$ in *C* or $\acute{\text{V}}$ in *a*?—In 2) is it $\underset{\prime}{\text{III}}^{7}_{2}$ in *C* or $\acute{\text{V}}^{7}_{2}$ in *a*?—How would you analyze 3)? You can, of course, deprive the second chord of diatonic function and symbolize it as $^{7}\frac{1}{2}$ on B, and this is the wisest course to follow when you are very much in doubt.—Is the metre a factor to be considered in determining transient modulation? In 4), for example, the resolution of the chromatic chord comes squarely on the beat, and is a consonant triad on a root a fourth above. Does the inversion of the chord of resolution make a difference?—In all such cases, you are free to use your own discretion. *It makes no difference to the composer* whether or not his harmony involves a transient modulation.

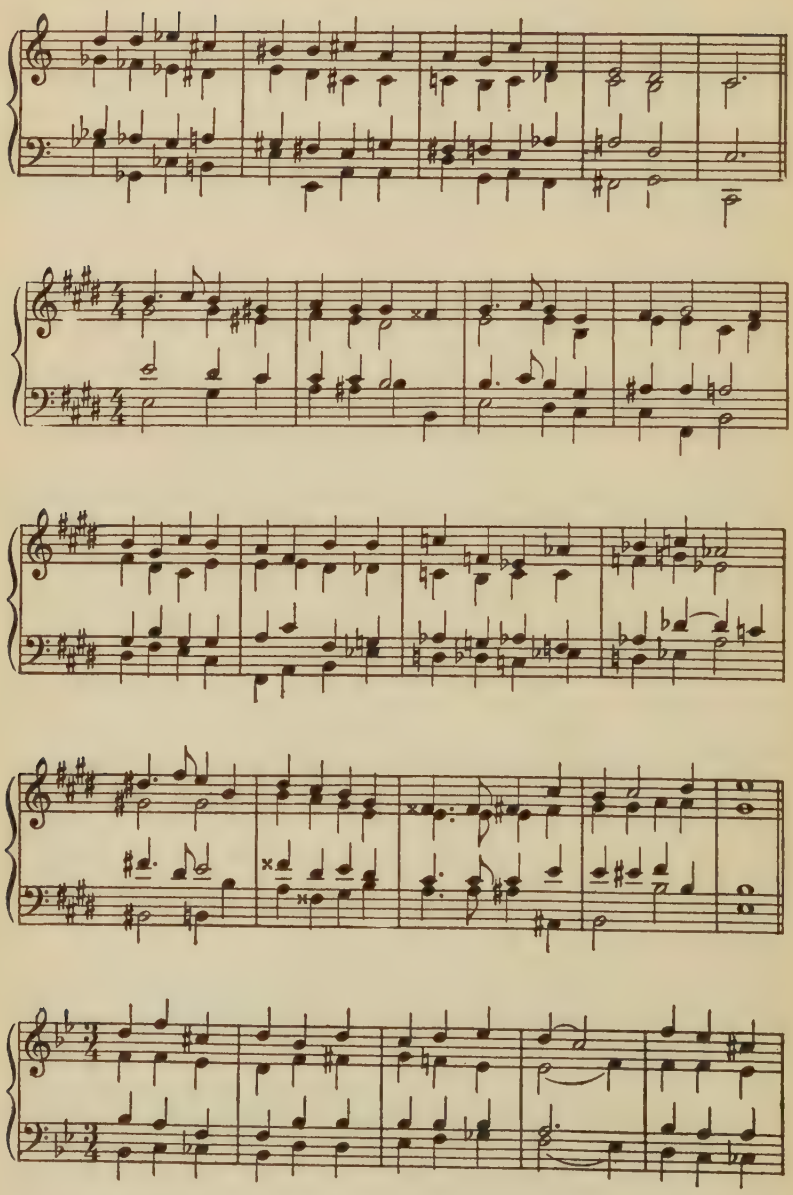
Analyze the following Bach chorales, noting the emotional significance of the chords with chromatically altered tones: No's. 21, 59, 94, 133, 146, 162, 216, 234, 252, 262, 265, and 339.

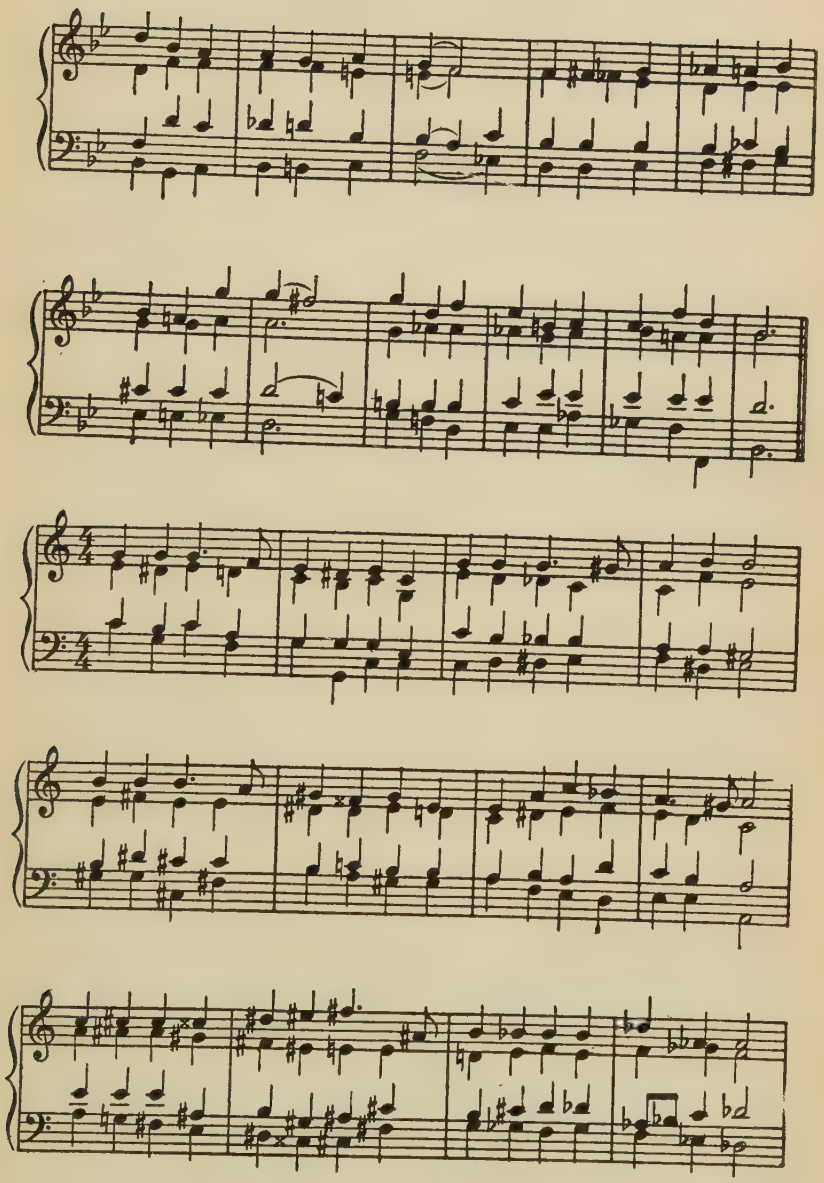
Dictation: General Review.—

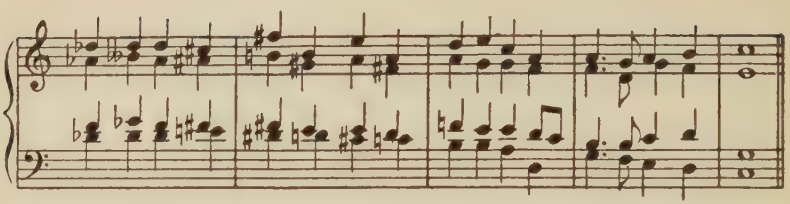












THE BROADER CHROMATIC STYLE

At the beginning of our study of chromatics we made the statement that any tone of a diatonic chord may be raised or lowered a half-step as long as the function of the chord remains unchanged. We have presented for study examples of the more common of these chromatic changes. This delimiting of the musical material has enabled us to retain our system of symbolization for purposes of analysis and dictation without involving undue complication. Our most complicated symbols, the $\underset{\wedge\wedge}{\mathrm{II}}^7$ and $\underset{\wedge}{\mathrm{V}}_2$ in major, and the $\underset{\vee\vee}{\acute{\mathrm{V}}}^7$ and $\underset{\vee\vee}{\acute{\mathrm{vii}}}^7$ in minor, represent chord-forms which lie very near the centre of tonality; the first of these is the sole structure encountered with more than two chromatic alterations, because it is the only common instance. We expressly excepted the remote diminished-seventh chord in minor, first because it is rare, second because it is usually spelled enharmonically in whatever manner will involve the fewest accidentals, and third because, being remote, its color symbol (75) is not inappropriate.

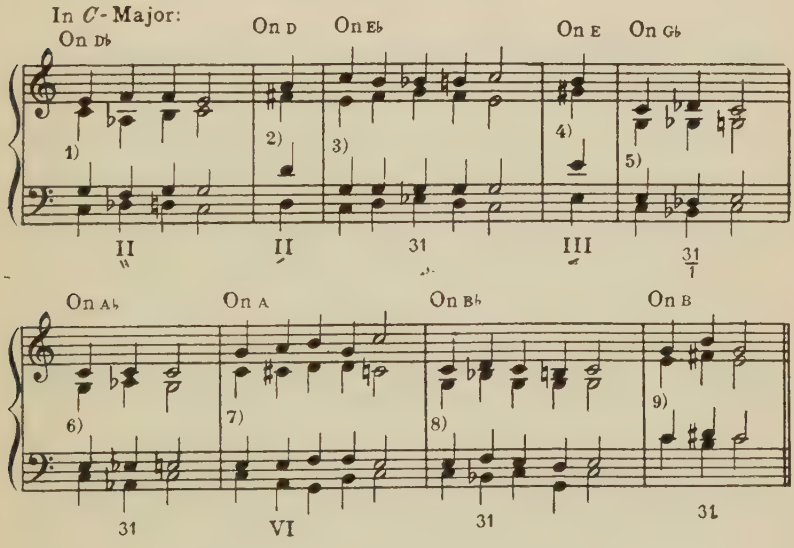
We shall now broaden the scope of our study to include the free use of the chromatic scale of twelve tones, using our chord-forms at first with functional relationship to a definite key-centre, then introducing a few which have no ascertainable function, finally arriving at a style characterized by the prac-

tically exclusive employment of chords for their color-value alone.

For analysis and for dictation these methods of general procedure are recommended:

1) Spell chromatic notes in the manner which will involve fewest accidentals, using ♮, ♯, or 𝄪 for upward-tending tones, ♮, ♭, and 𝄫 for those which tend downward. 2) When a chord containing chromatically altered tones has function in a definite key, spell it so as to exemplify that function and symbolize it as you have done hitherto. 3) When in doubt as to function, use the species-symbol representing the *sound* of the chord, and spell it in whatever manner is easiest to read. For the complete list of species-symbols, see the section on Harmonic Analysis under Color Chords, p. 33.

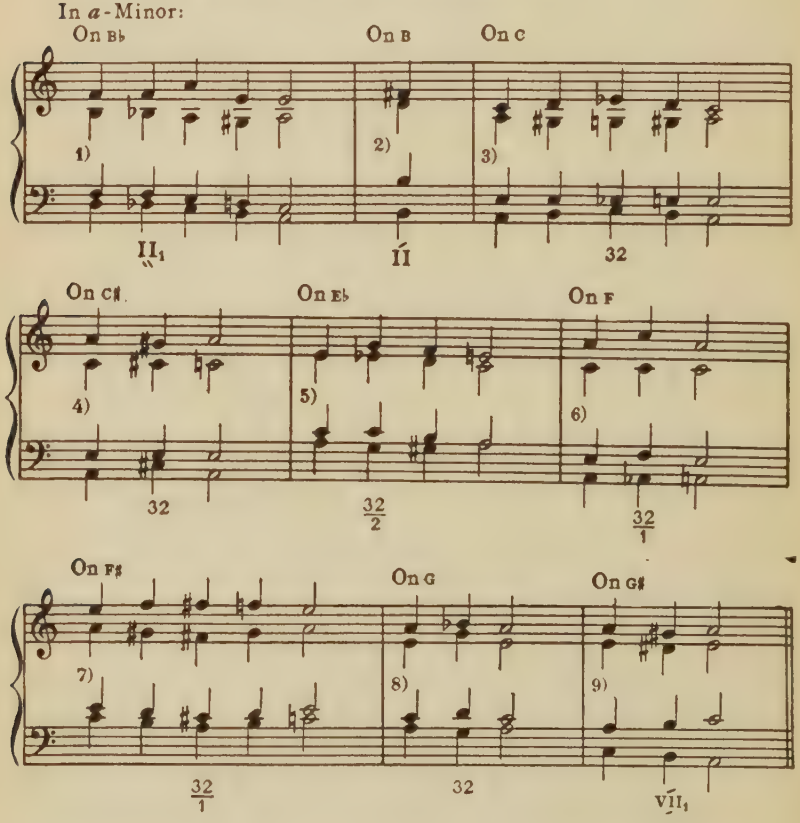
The First Species Triad (Symbol: 31). A triad of the first species may be employed upon every degree of the chromatic scale, resolving at once to a dominant or tonic chord in either mode. Omitting the purely diatonic triads, and symbolizing those already familiar, the following successions will serve for illustration.—



For interesting examples of 5) and 7) see Dvořák: *Symphony* 'From the New World,' introd. to 2nd movement; for 7) see also Franck: *Symphony,* last movement, subordinate theme for brass choir, though the harmony contains a V organ-point; for 8) see Orlandus Lassus, the opening of the madrigal *Matona mia Cara.* The composers of the sixteenth century were far more given to experimenting with the coloristic effects of simple chords than is generally realized.

Exercise: Work out similar successions involving the first species triad on each degree of the chromatic scale, introduced from and resolving to the key of *a*-minor.

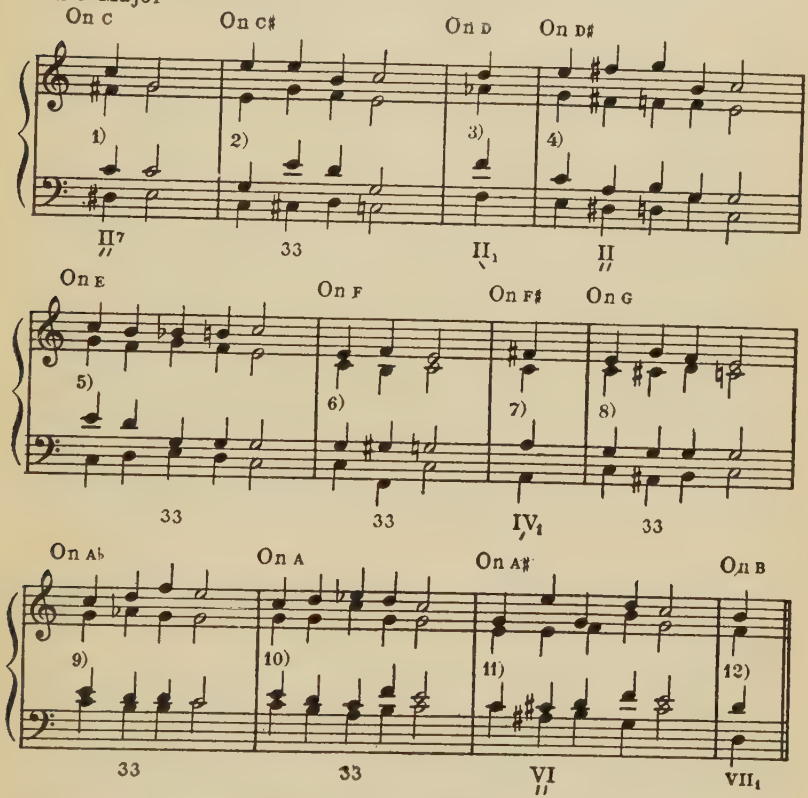
The Second Species Triad (Symbol: 32)



Exercise: Work out similar successions involving the second species triad in the *major* mode.

The Third Species Triad (Symbol: 33)

In *C*-Major

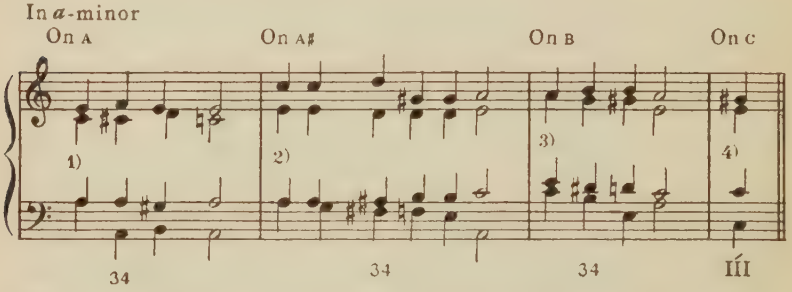


Observe that the effect of diminished triads is much the same as that of diminished seventh-chords. The 33 in 1), 4), 7), and 10) is analogous to the secondary 75; in 2), 5), 8), and 11), it resembles the remote 75; and in the other cases, the notes are those of the dominant 75. But, in four-part harmony, the problem of doubling makes the introduction of chromatic diminished triads less simple than the employment of the analogous four-tone structure.

Exercise: Work out the full twelve successions exemplify-

ing the use of the third species triad on each chromatic degree, introduced from and resolving to *a*-minor.

The Fourth Species Triad (Symbol: 34). There are but four possibilities for augmented triads differing from one another in combination of tones, since the structure on 3 and on $\acute{5}$ duplicates that on 1, that on 4 and 6 duplicates that on $\grave{2}$, etc. Nor is it ever necessary to indicate inversion, so ambiguous is the nature of the combination.

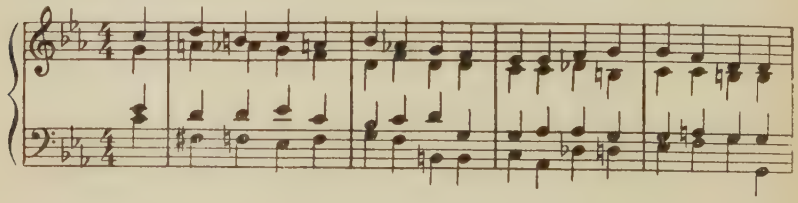


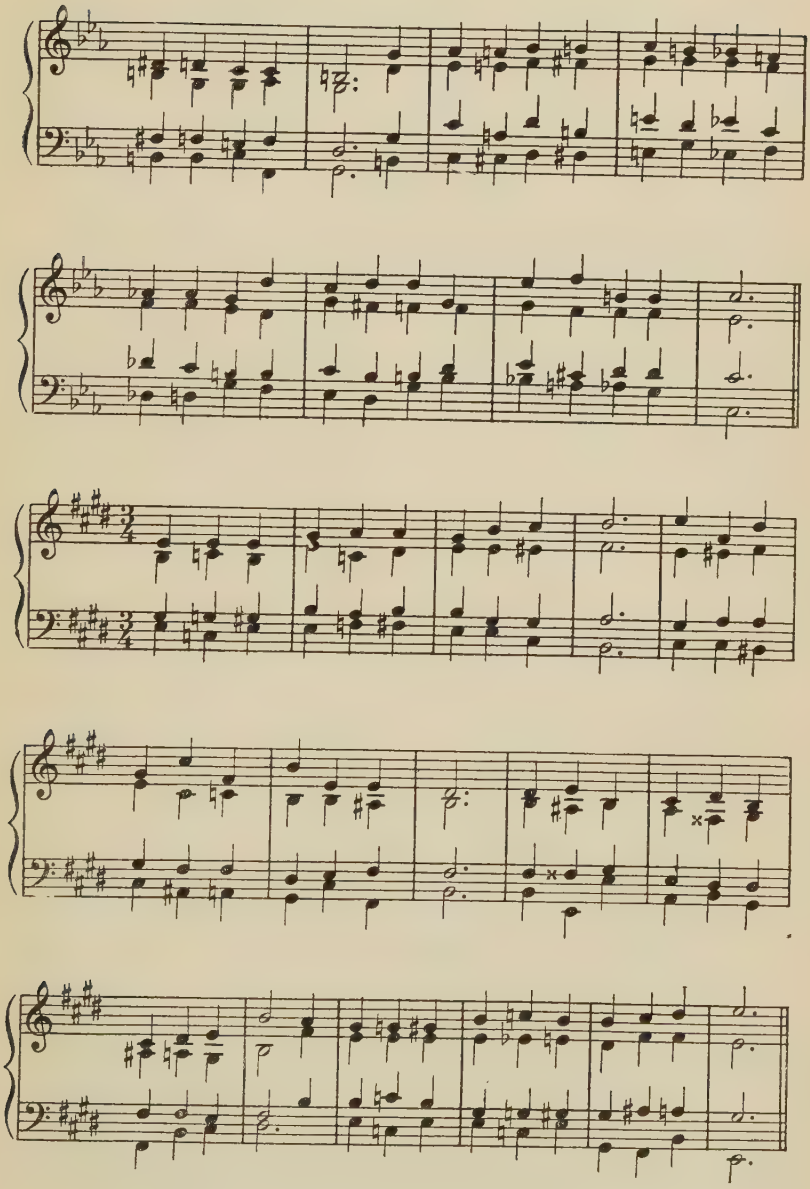
Exercise: Work out diatonic introductions and resolutions of the four possible augmented triads in any major key.

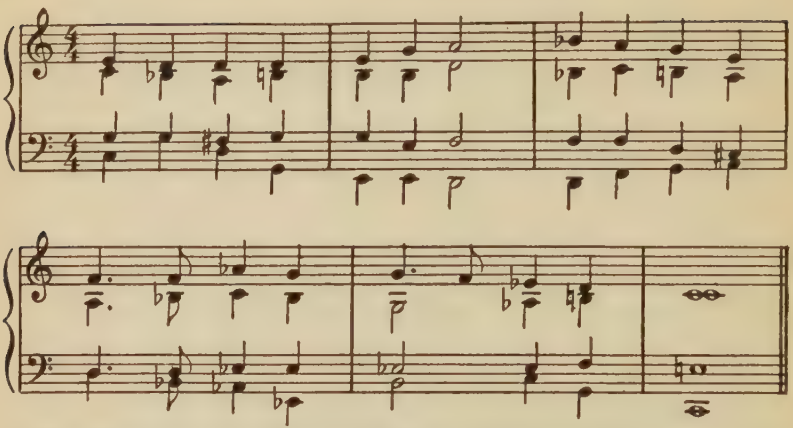
Keyboard Harmony: Play any of the four species of triads the instructor may call for, on any note, resolving it into any indicated major or minor key.

Dictation: All Four Species of Triads.

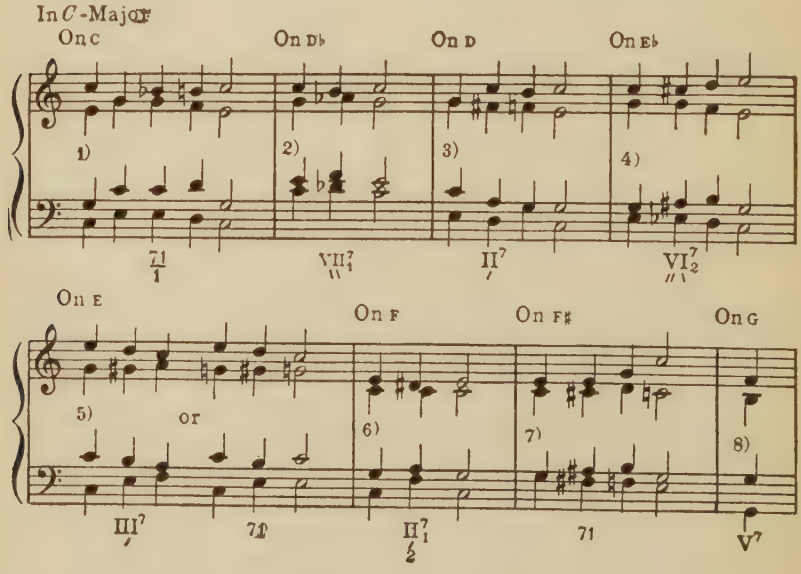
In these, and in subsequent exercises for dictation, employ the Roman numeral symbols where relationship to a key-centre is felt to exist: otherwise, employ the species symbols and write in the Bass-note.

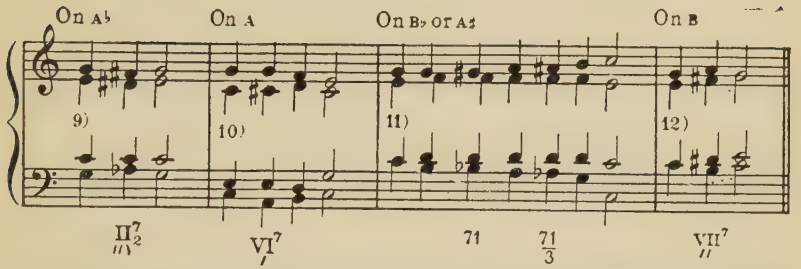






The First Species Seventh-Chord (Symbol: 71). It is possible to erect a chord having the sound of a Dominant or First Species Seventh-Chord on each of the twelve tones of the chromatic scale. In the major mode, these chords will all resolve directly to a chord with positive dominant or tonic function in the key, though of course they may be employed purely for their color.

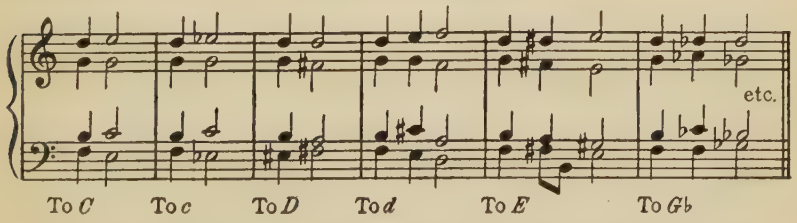




In 1) the function of the 71 is technically VI^7 with raised scale-6th, the B♭ being equivalent to A♯, but the chord is usually spelled with $\hat{7}$.—Is there any question as to the function of the 71 in 4)?—Could that in 7) be called a IV^7 with *three* sharps?—In 11) we have the very common case of a 'secondary' chord with various enharmonic spellings occurring as passing chromatic harmony between V^7 and II_2 in either direction; it is also spelled with both $\hat{6}$ and $\hat{7}$.

Exercise: Work out a series of chord-successions involving 71 in the minor mode. Do you find as many cases which can be represented by a functional symbol as in major?

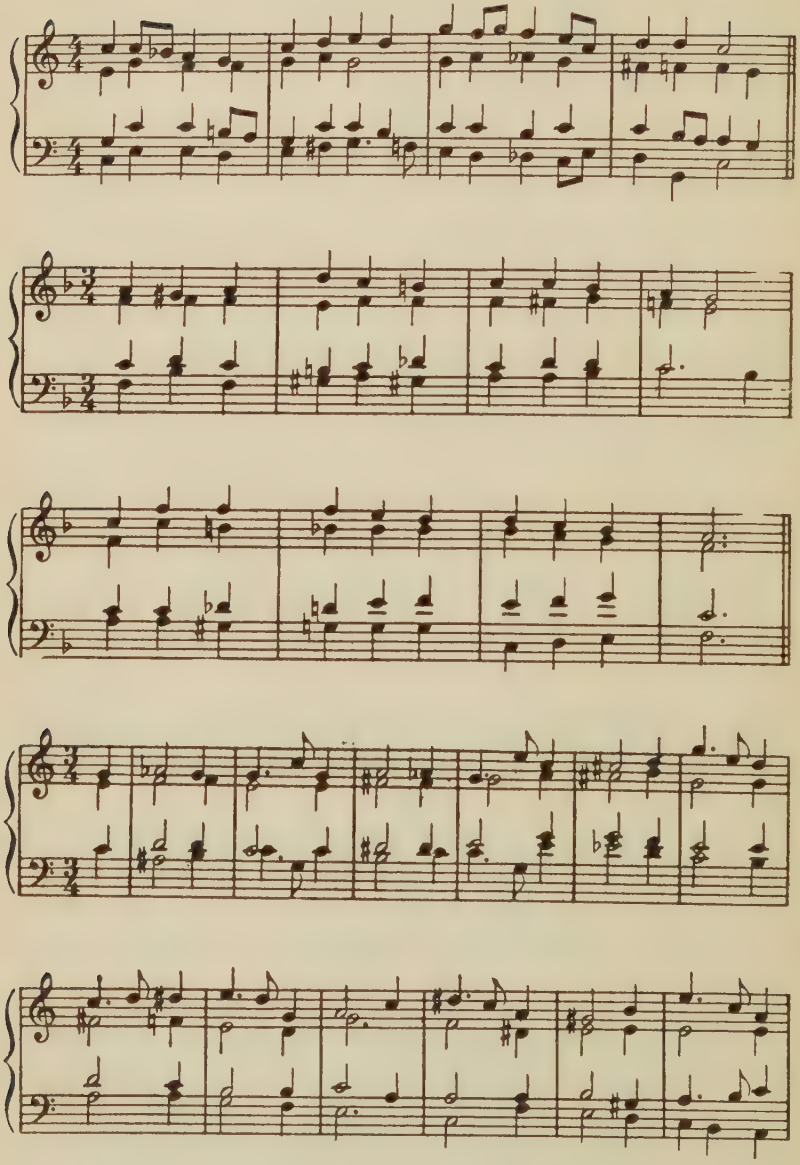
Keyboard Harmony: Play and resolve any First Species Seventh-Chord in any inversion to all of the twenty-four major and minor keys. For example, take $\frac{17}{3}$ on F:

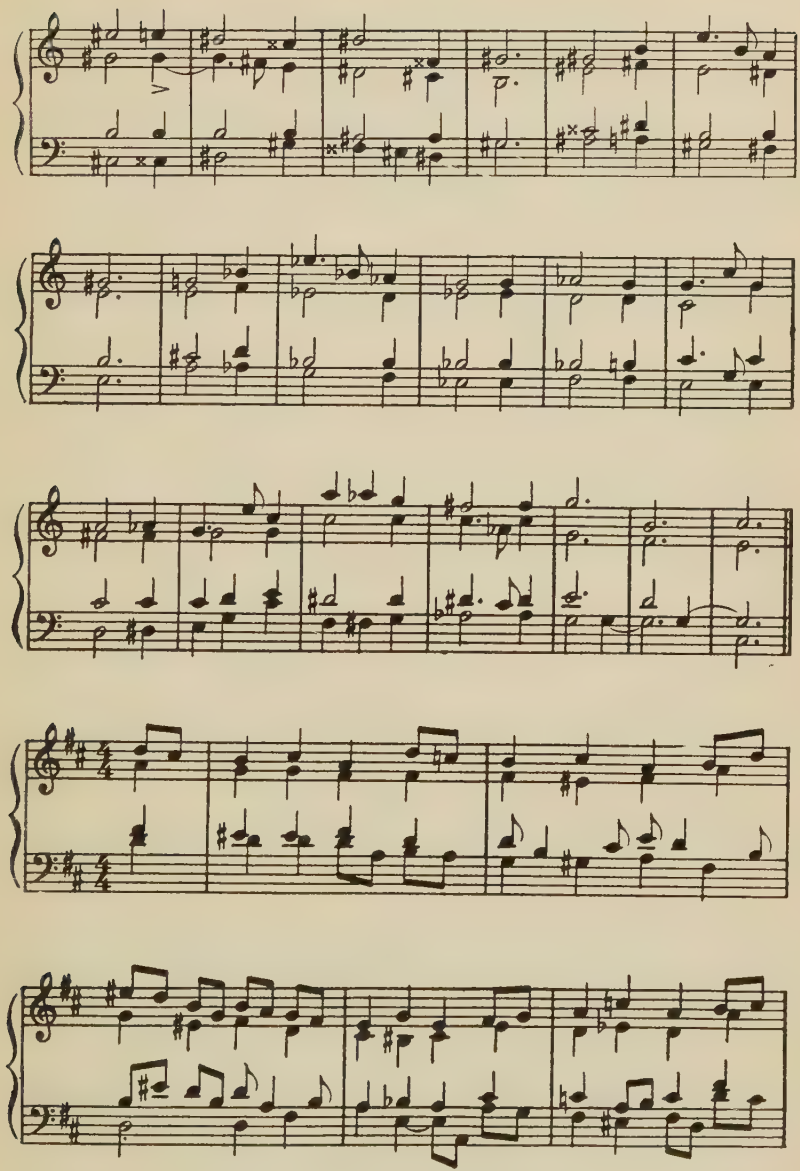


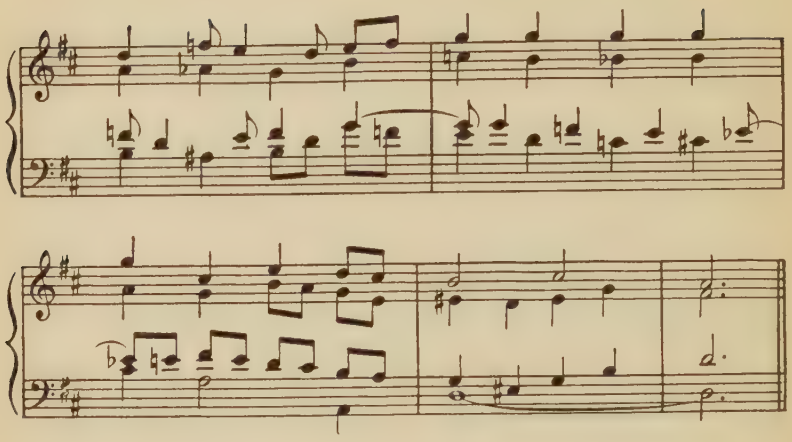
Name the function of the 71 each time it is possible to do so.

Dictation: 71 in Major.

The following studies for dictation are made especially numerous because the functional analysis of First Species Seventh-Chords presents so many difficulties. It is possible to use the Roman-numeral symbols exclusively in the earlier exercises. Consecutive perfect fifths will occasionally be found unmarked in subsequent exercises where the author considers their effect musical.

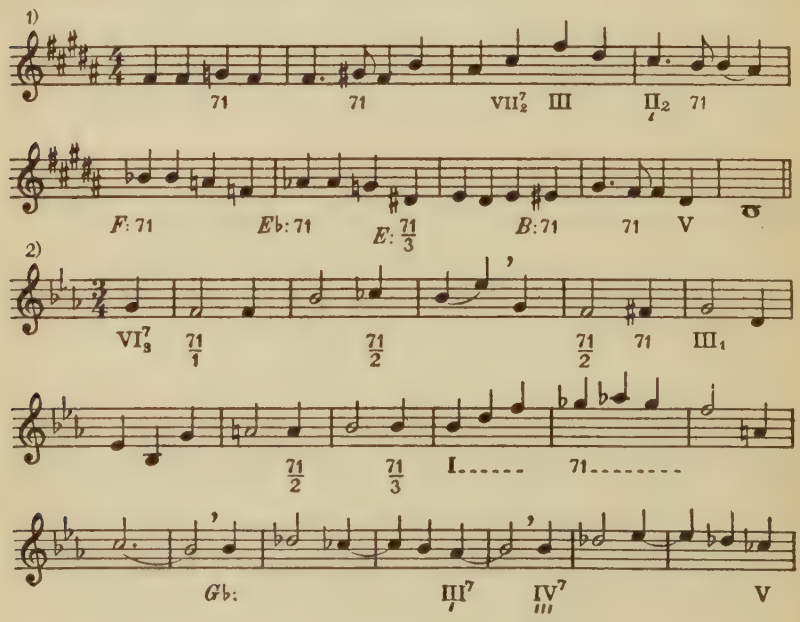


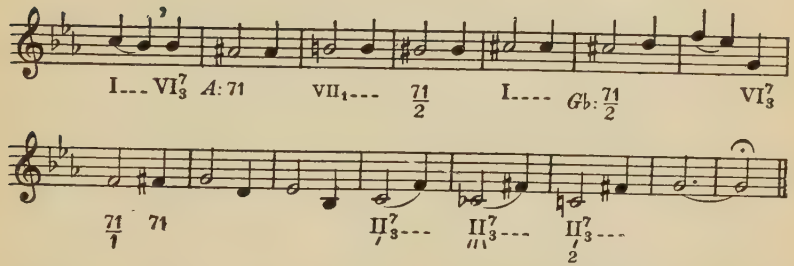




Melodies to be harmonized: 71 in Major.

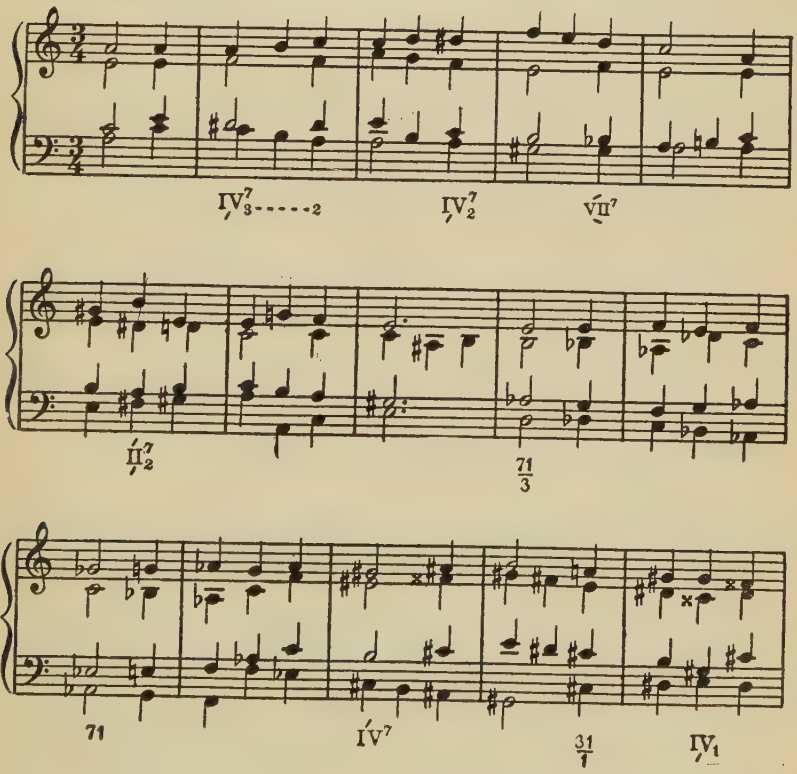
A 71 with definite chromatic function in a specific tonality is to be used where indicated; the regular V^7 is not marked.

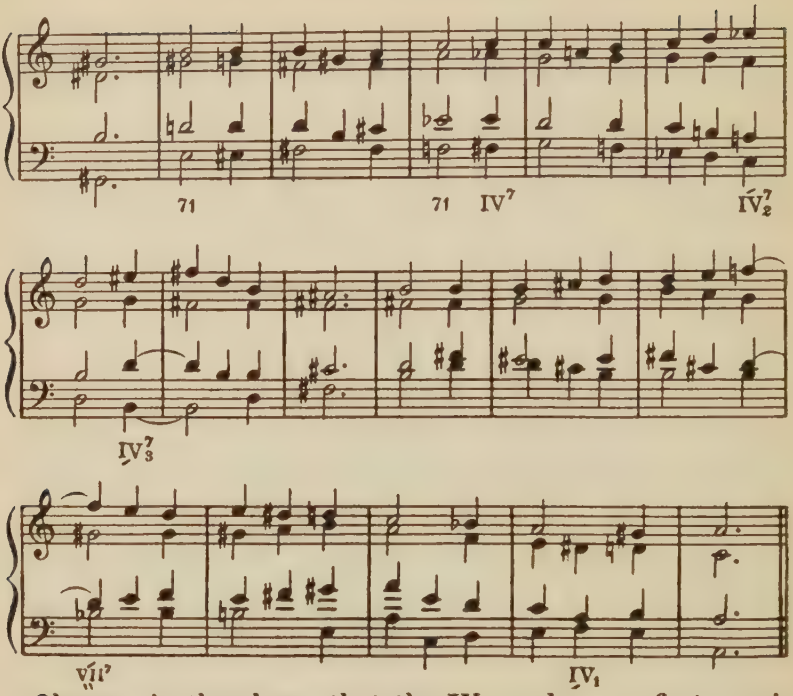




The First Species Seventh-Chord in Minor:

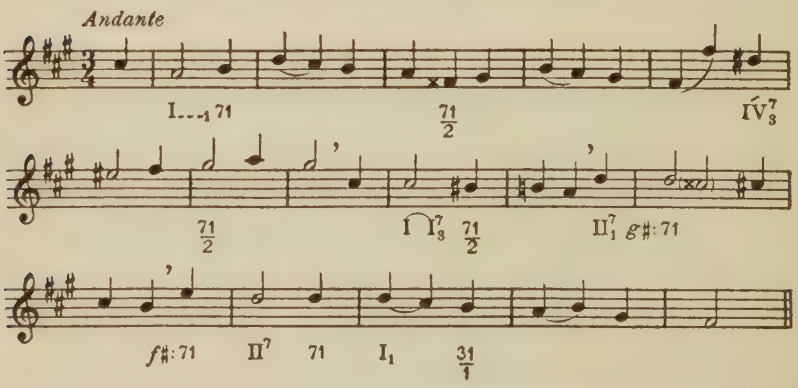
Dictation:



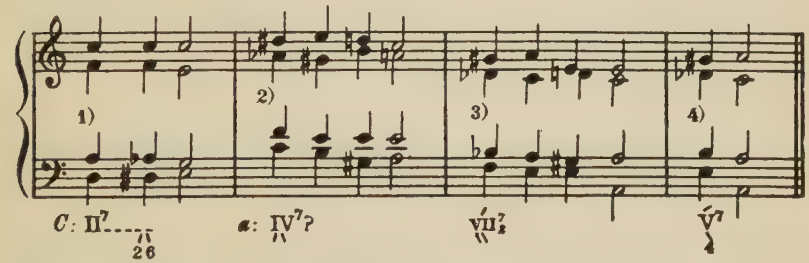


Observe, in the above, that the IV̍$_1$ ranks as a first species seventh *sound*, as does the VII̍$_1$ in both modes, and also the II$_1$ with 2́ and the IV̍$_1$ in major. These were called 'Chords of the Augmented Sixth' in the Figured Bass system.

Melody to be harmonized: 71 in Minor



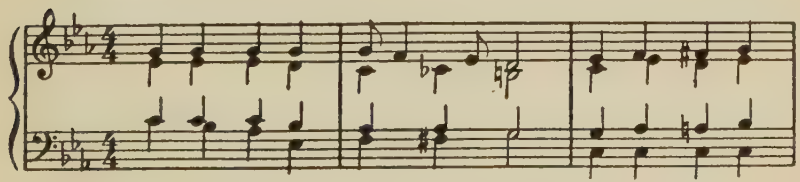
The Second Species Seventh-Chord: (Symbol: 72). On the unmodified staff, the seventh-chord of the second species occurs on the roots D, E, and A. There are practically no instances, excepting the II^7 with $\acute{2}$ and $\grave{6}$ in major and the $v\acute{i}i^7$ in minor, of the common use of this structure as a diatonic chord with altered tones. In the rare cases when it is met with, it may most sensibly be regarded as a color-chord and analyzed apart from the tonality.

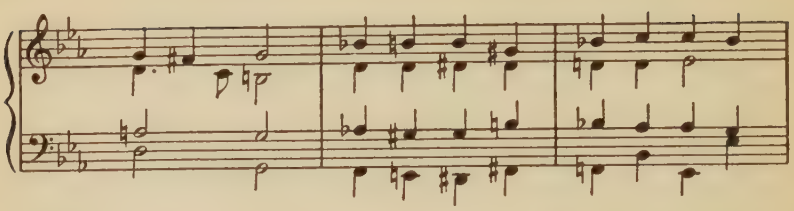


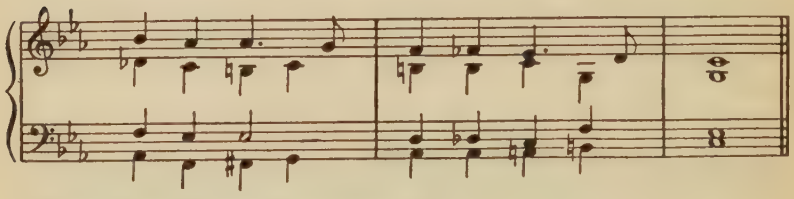
The structure in the minor mode corresponding to the major II^7 with $\acute{2}$ and $\grave{6}$, as represented in 2), would be spelled enharmonically ($\grave{1} = 7$) and is certainly uncommon.

Keyboard Harmony: In addition to the successions just given, experiment with the 72 structure on each chromatic tone of a given key. What do you conclude as to its availability?

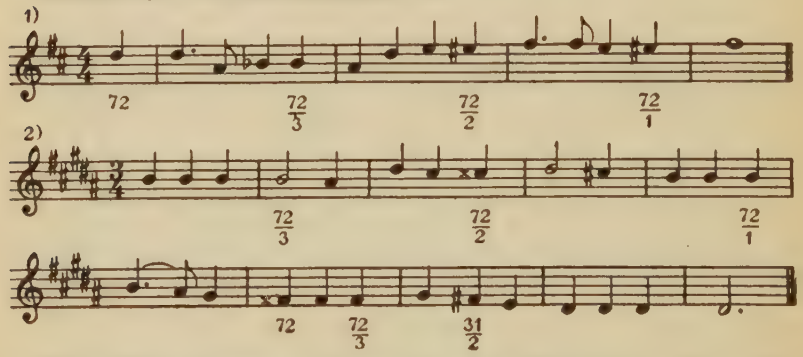
Dictation: 72



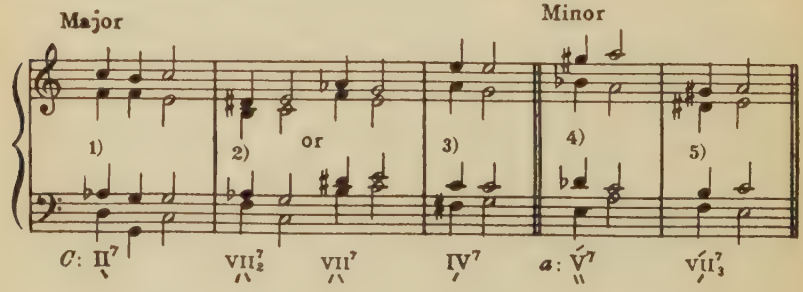




Melodies to be harmonized: 72



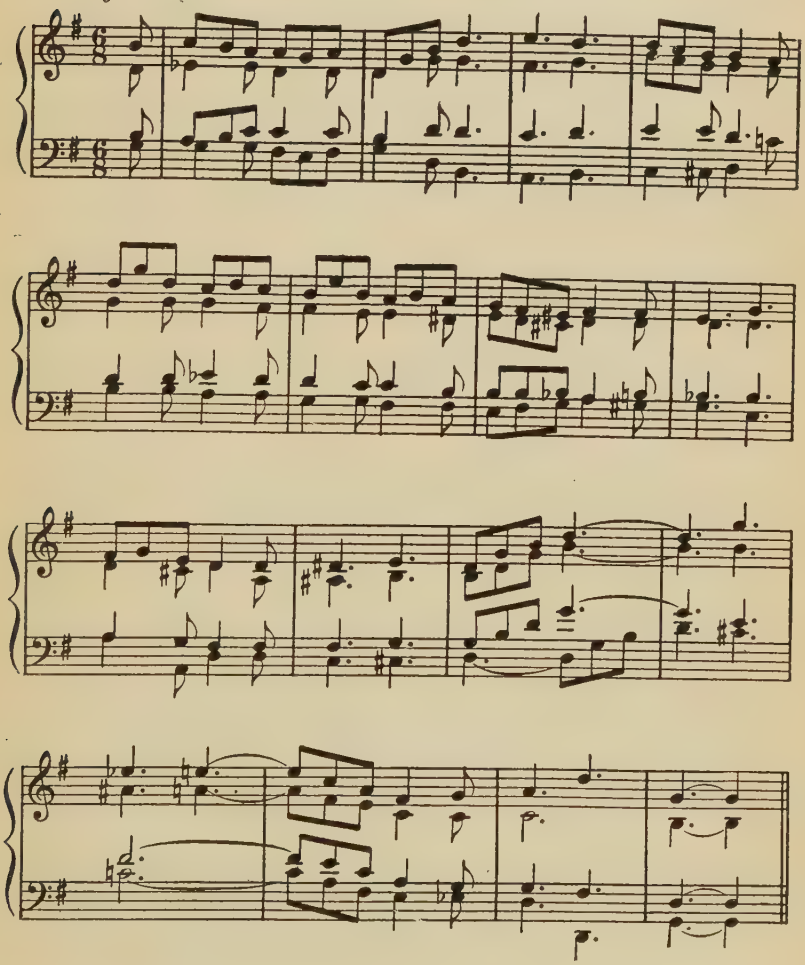
The Third Species Seventh-Chord (Symbol: 73). The seventh-chord of the third species (type: B-D-F-A) has these common chromatic uses:

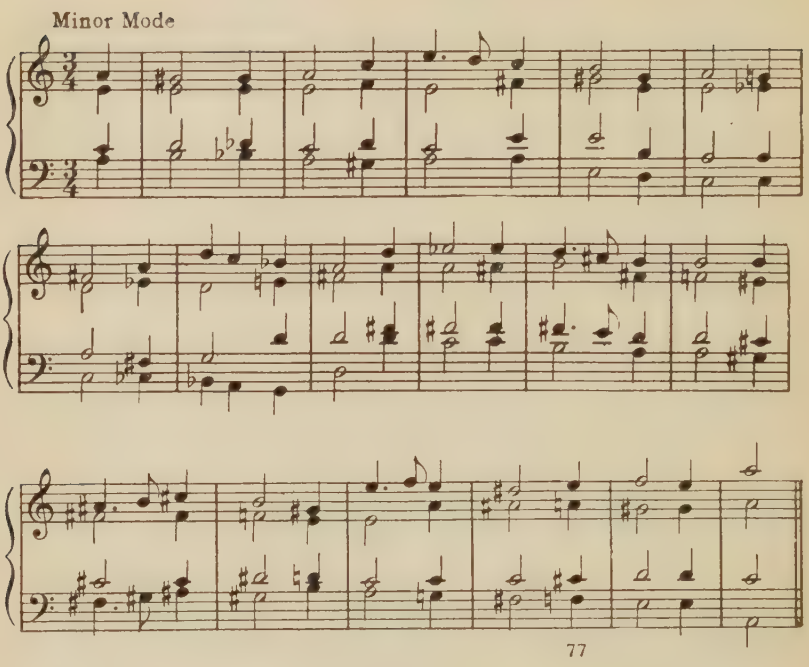


Keyboard Harmony: Play the 73 on any tone, in any inversion, resolving it into any named major or minor key. Query: Is *immediate* resolution (to a V or I) always possible?

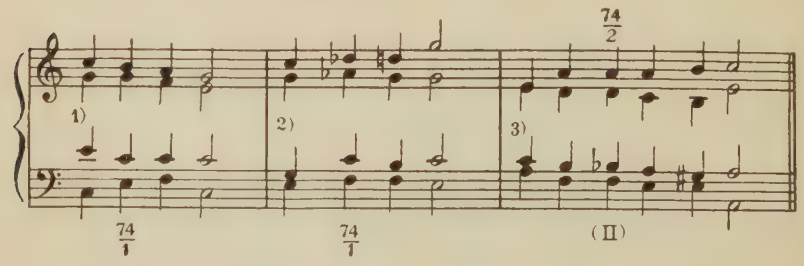
Dictation: 73

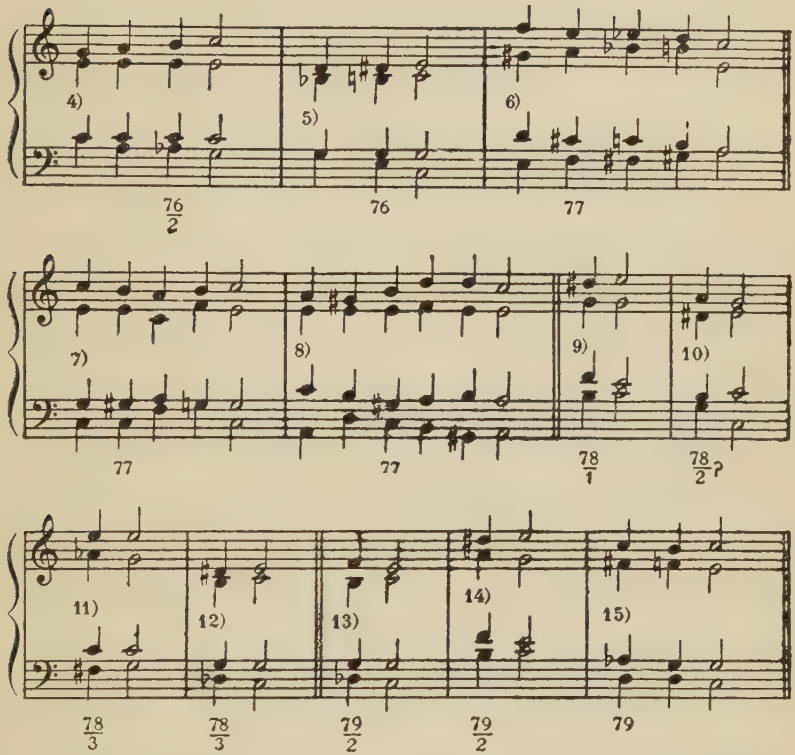
Major Mode





Other Dissonant Chord-Species. With the exception of the chord of the diminished seventh, dealt with previously as 75, the remaining species of seventh-chords are characterized either by a major seventh from the apparent root or by *two* diminished or augmented intervals within the structure. (See the tabulation on p. 33.) Examine the following successions:



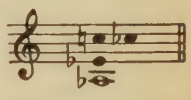


In 10) we have the $\dot{V}^9$, but, without the presence of the chord-seventh, the *sound* is that expressed by the symbol 78.—It must be remembered, in all these examples, that the color-symbols represent the *sound* of the chord only, not its shape, and that enharmonic notation may effectually disguise the typical form of the chord. In 4), for example, the fact that the third combination of notes is a seventh-chord of the sixth species in second inversion is not patent to the *eye* till $A^{\flat}$ in the Tenor has been mentally changed to $G^{\sharp}$. The trained *ear*, unhampered by the notation, will have no such difficulty.

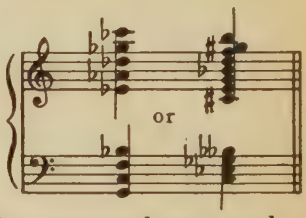
It might be argued that a tenth species of seventh-chord structure is possible, with minor third, augmented fifth and major seventh, thus:

The author's rejoinder would be that, since $G^{\sharp} = A^{\flat}$ the

acoustical effect is that of a chord whose *root* is A♭, and the constitution of the chord would then be A♭-C-E♭ with the B♮ (= C♭) negating the fifth overtone *which is present.* The effect is:

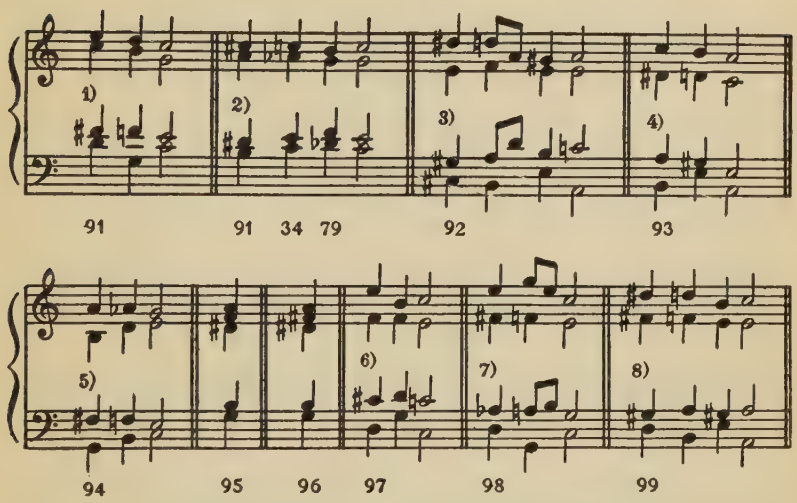


and therefore the combination is unacceptable as a species of chord-structure worth talking about. In the search for the extreme of dissonance which is characteristic of modern music, any combination of tones which it is physically possible to produce is admissible as musical material, no matter how hideous it may be, considered as *sound.* One might extend ones notions of chord-structure to include such combinations as:



but the ability to handle them rationally has not yet been vouchsafed to any composer. The student with a talent for composition should be urged to experiment to his heart's content with esoteric harmonies, but cautioned that chord-sounds are no more than 'words, words, words' if they be not put together significantly.

The Chords of the Ninth. In the section on Harmonic Analysis, under Color Chords, we listed nine species of chord-structure with the distinguishing interval of a ninth, major or minor. (See p. 33.) Since it is always necessary, in four-part harmony, to omit one of the internal intervals of these structures, a detailed study of all the possible species of ninth-chords is impossible within the scope of this manual. The successions which follow illustrate the chromatic employment of all but two of the species.—



It is true that the essential quality of some of these ninth-chords is lost by robbing them of one member, and 92 and 94 are uncompromisingly diatonic. 91 and 93,—respectively like V^9 in major and $\dot{V}^9$ in minor,—are common, and 98 and 99 lend themselves easily to coloristic use in four-part harmony.—Why are 95 and 96 unavailable?—What is the sound of each without its chord-seventh?—

Note the difference in the action of the 91 in 1) and 2); analyze it precisely. —Are these two types of 'behavior' possible for other species of ninth-chords?—Can you discover further practical possibilities of ninth-chord structure?

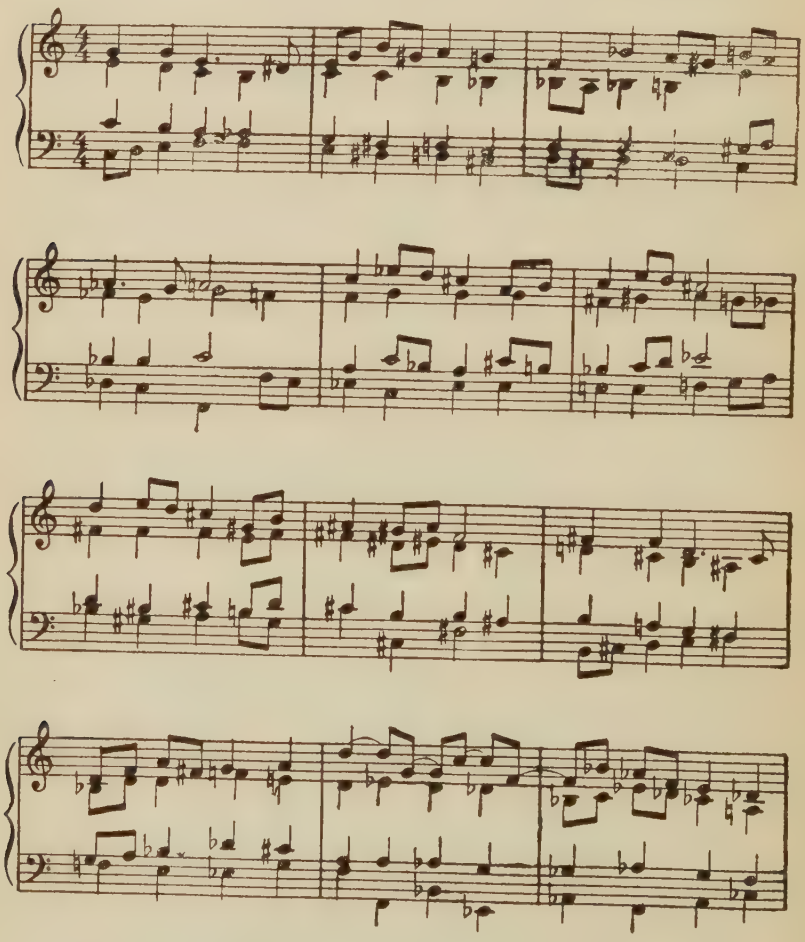
Keyboard Harmony: Review of Color-Chords.—Our system of color-symbols represents a 'vocabulary' of twenty-two structures differing from one another in sound, and their possible inversions,—four species of triads, nine of seventh-chords, and nine of ninths. The triad sounds and the first three and the fifth species of seventh-chords have been studied in detail because of their more frequent occurrence in actual music. To these might be added 78 and 79, familiar as $\dot{V}^7$ and $\grave{V}^7$, and 91, 93, 95, and 96 among five-tone chords.

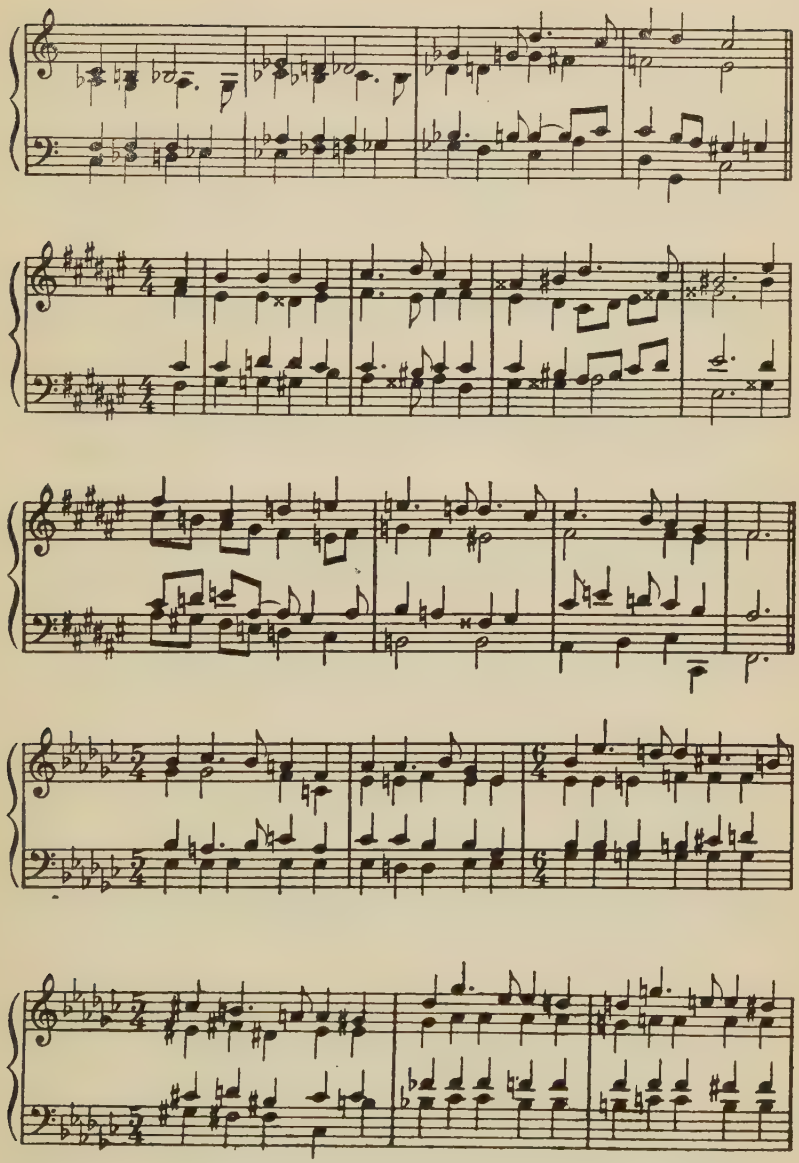
Play any of the twenty-two sounds in fundamental position

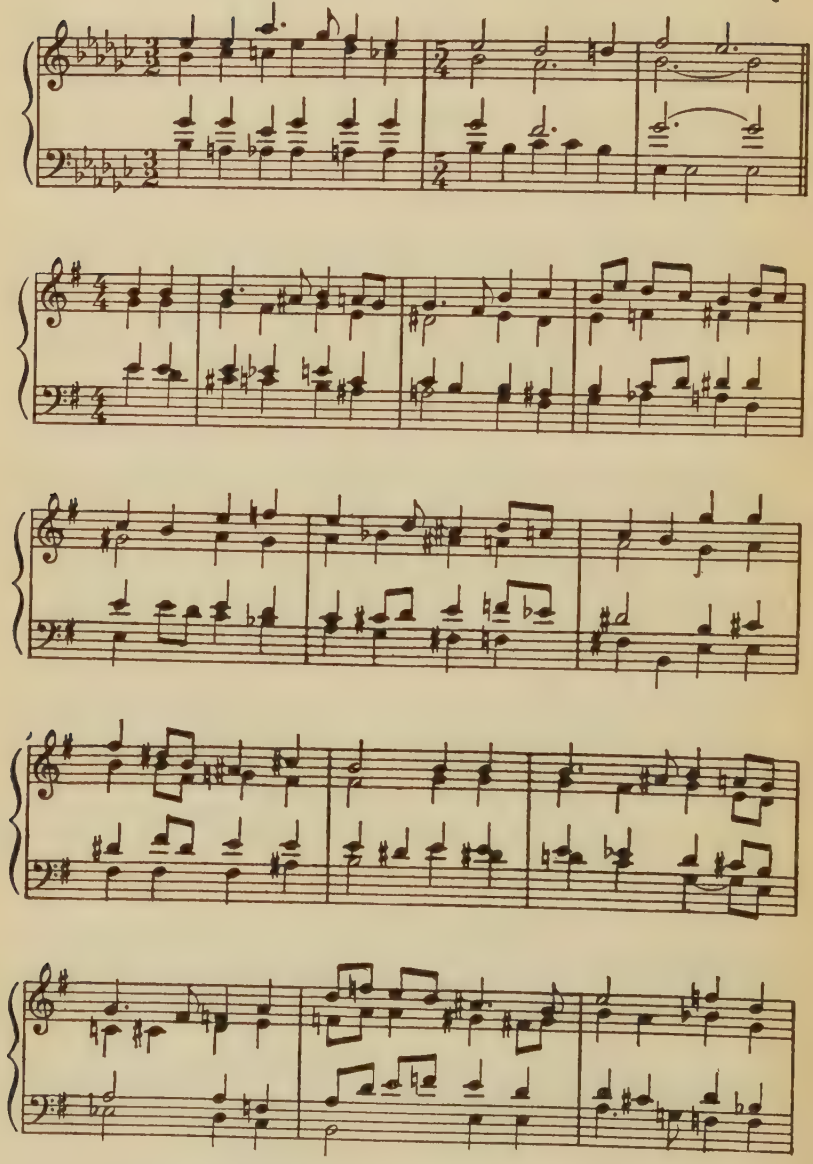
on any named tone, with especial attention to those just enumerated.

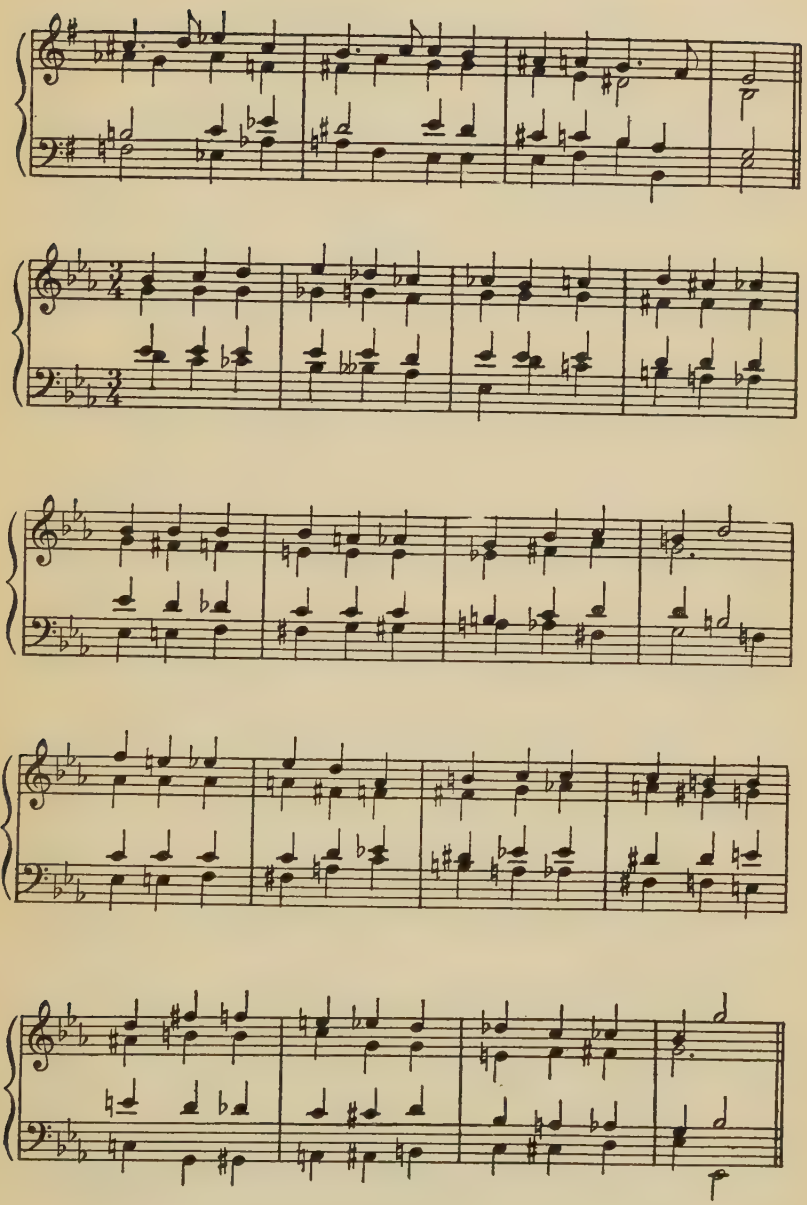
Dictation: Review of Color-Chords.—

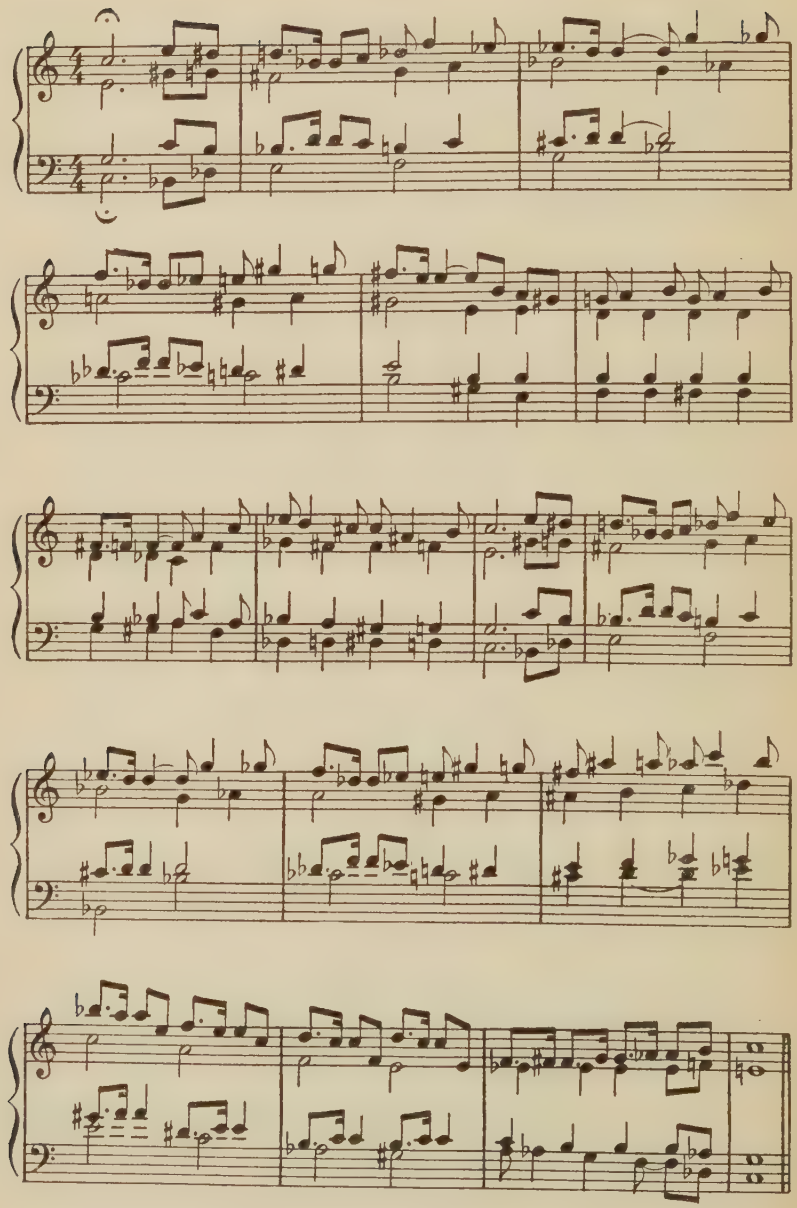
The exercises which follow exemplify the employment of all chord-structures freely for coloristic effect. The final two should be stenographically represented by color-symbols only.



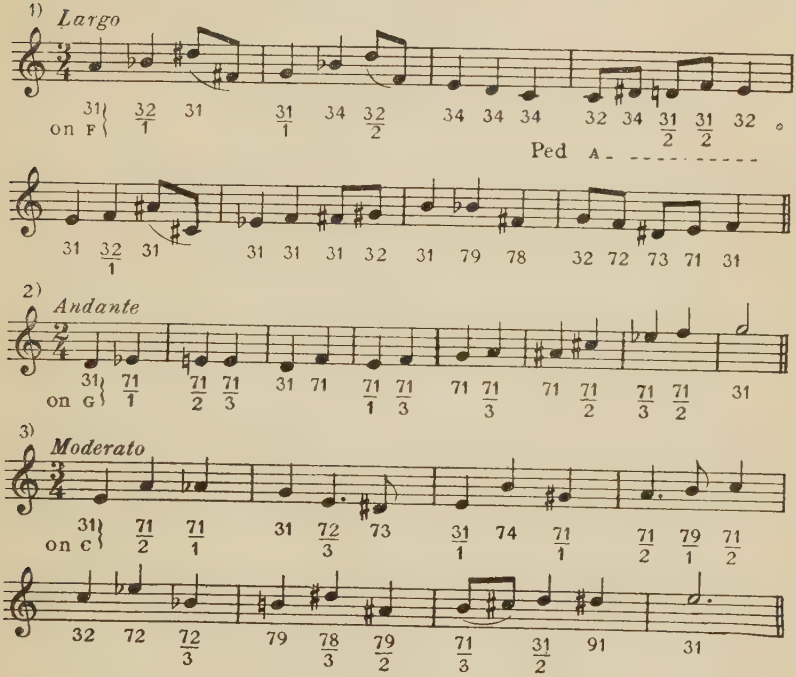








Melodies to be harmonized: Free use of Color-Chords.



APPENDIX A

A TABLE OF CROSS REFERENCE FOR THE CHORALES OF BACH

The left-hand column contains the numbers of the Chorales as referred to in this manual and as contained in the compact and inexpensive Edition Breitkopf No. 10: Johann Sebastian Bach, *371 Vierstimmige Choralgesänge,* Breitkopf & Härtel, Leipzig (1831).

The first right-hand column contains the numbers for the corresponding Chorales in the Edition Breitkopf No. 3765: Johann Sebastian Bach's Werke, Für Gesang, Gesammtausgabe für den praktischen Gebrauch, vol. VII—*Choralgesänge,* (1898). This later edition contains the original texts of the Chorales as well as reference to the cantatas, etc., in which they are to be found, and is therefore invaluable for the scholar interested in research.

The second right-hand column refers to the Peters Edition: *Johann Sebastian Bach's mehrstimmige Choralgesänge und geistliche Arien,* herausgegeben von Ludwig Erk, Ed. Peters No's 21 & 22 (2 vols.) (1850 & 1865).

At the extreme right will be found reference to the pages in the present manual on which the Chorales are cited.

The dagger † after the numbers for the Edition Breitkopf No. 3765 indicates that the version there found differs in certain important respects from that given in the Edition Breitkopf No. 10. The student who wishes to consult the most authoritative edition, that of the Bachgesellschaft, will find it systematically referred to at the head of each Chorale in the Edition Breitkopf No. 3765.

E. B. 10	TITLE	E. B. 3765	PETERS	Referred to in this Manual on page:
1.	Aus meines Herzens Grunde	30	II 165	42, 79, 89
2.	Ich dank' dir	176		89, 101, 192
3.	Ach Gott, vom Himmel	5	I 1	89, 156, 172, 193
4.	Es ist das Heil	86	I 31	193
5.	An Wasserflüssen Babylon	23	II 161	57, 101
6.	Christus der ist mein Leben	46†	II 176	42, 57, 193
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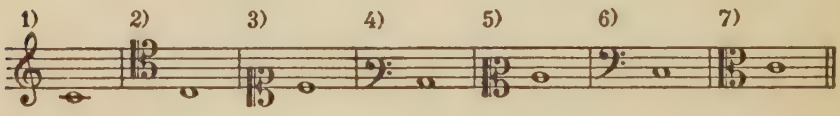
APPENDIX B

TRANSPOSITION BY MENTAL CHANGE OF CLEF

The technic of effecting transposition of the pitch of all notes on the staff by mentally supplying another clef than the one printed is not widely practised in the United States, but with the custom, rapidly becoming more widespread, of singing the letter-names of the notes instead of the Tonic Sol-Fa syllables, there is no reason why transposition should not be as easily effected as it is in certain European countries, by making c fall on any line or space of the staff, in this manner:



1) The familiar Treble Clef.

2) Tenor C-clef, now used for 'Cello, Bassoon, and Trombone.

3) Soprano C-clef, found in choral parts of Bach's time, etc.

4) Baritone F-clef, now practically unused.

5) Mezzo-Soprano C-clef, found in Bach's scores and practised by players of the Horn in F.

6) Bass F-clef.

7) Alto C-clef, now used principally for the Viola.

The actual pitch of "middle" c, f of the "small octave," etc., is disregarded in this system, the octave transposition to the vocal range of the person who is singing being taken for granted.

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